COMMERCE AMERICA

U.S. Department of Commerce / March 14, 1977

Government Research Spurs Private Profits

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"If we have a little luck we might start to see significant numbers of electric vehicles by the latter 1980s." That's General Motors President E. M. Estes going out on a limb about auto prospects stemming from GM's experimental zinc/nickel oxide battery. "Our goal is to build an electric car with a range of around 100 miles between charges and with a top speed of, say, 50 MPH. If we could achieve that in a lightweight two seater with ample room in the back for groceries and such we believe many urban families would use it as a second or third car. And we also think there is great potential for wider use of electric delivery vans in the cities."

Among the five busiest U.S. ports, only Los Angeles-Long Beach received more ships last year than in 1975. Here are the leading ports, by arrivals of ocean-going vessels, with 1976 totals vs. those of 1975: New York, 7,730, 7,832; Los Angeles-Long Beach, 5,071, 4,804; New Orleans, 4,538, 4,700; Houston, 4,524, 4,591; Philadelphia, 4,456, 4,675; Hampton Roads, 4,060, 4,090; Baltimore, 4,053, 4,033; San Francisco, 3,775, 3,698; Seattle, 2,338, 2,038; Columbia River-Portland, 1,883, 3,204, and Boston, 1,172, 1,178. New York's Maritime Association released the figures.

U.S. income tax law revisions on overseas pay are bringing an exodus of American engineers from projects abroad. According to U.S. Embassy reports, the area most affected by the engineer withdrawal is the Near East—the most lucrative for U.S. suppliers. In 1975 the involvement of U.S. engineers in projects outside the country resulted in $21.8 billion in contract awards. An estimated 10 percent of the total was spent for services, 30 percent for U.S. equipment and supplies. Many firms are replacing the departing Americans with third country employees who accept lower salaries and have lower tax obligations at home.

To save jobs, the state of New Jersey has cut business taxes. Over the past seven years, New Jersey has lost 160,000 factory jobs through plant closings. To retain existing plants and bring in new industry, the legislature has repealed a special excise tax on machinery and equipment, and exempted production machinery from the general sales tax. The measures mean a $2.5 million tax loss, but this could be offset over time by income tax revenue and lessened welfare costs. One steel company has already set plans for a New Jersey plant that will create 1,000 new jobs.

An inward flow of electronics technology will have a favorable effect on U.S. jobs. Up to now, the process of bonding wire leads to integrated circuits has been labor intensive and has sent some U.S. production offshore to low labor cost areas for final assembly. As a result of a technology exchange between Hitachi of Japan and Motorola of U.S., the Hitachi mechanized technique for bonding wire leads will be available in Motorola's U.S. facilities. This could slow or even reverse the trend to offshore assembly. It also counters a trend which generally has had U.S. technology going to Japan.

Truck sales set a new U.S. record last year, riding the crest of vanners' enthusiasm. The strength of the light truck segment was the keynote to the 1976 surge. Of the 3,181,000 units sold, 90 percent were in the under-10,000 pound gross weight category. In previous years light truck sales ranged between 78 and 84 percent of the total. A large proportion of the light truck sales was for personal and recreational rather than commercial use. Sales of medium and heavy-duty trucks bounced up only about 10 percent over their low 1975 figures.

Hospital care continues to be the major segment of ever-increasing U.S. medical costs. Health care expenditures topped $139 billion in fiscal 1976, up 14 percent for the year, according to the Social Security Administration. Of that total, hospital care amounted to 40 percent, climbing 15 percent in fiscal 1976 to $55.4 billion. Publicly financed medical care spending increased 15.6 percent in 1976, compared to a 22.5 percent increase in 1975.

The strong growth of franchising in 1976 was led by the newer type of sales or service outlets. Total U.S. franchising sales rose 16 percent last year to $212 billion, while the total number of franchised establishments increased by 3 percent to 446,000. But the steady decrease in the traditional types of franchise establishments—auto and truck dealers, gasoline service stations, and soft drink bottlers—continued in 1976. A notable statistic was the closing of 2,600 gasoline service stations.

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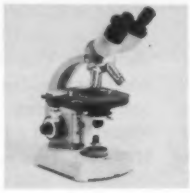

COVER: Government research having commercial application is being sought under a new program operated by Commerce's National Technical Information Service endeavoring to promote the use of unclassified technical material generated by government funds. Story begins on page 5.

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Records Of Three Composite Indexes Reveal Both Strengths, Limitations

This column was prepared by John W. Kendrick, Commerce Chief Economist, in collaboration with Theodore S. Torda.

John W. Kendrick

The composite indexes of leading, coincident, and lagging indicators have received steadily increasing attention from the general public in recent years. The leading index in particular has apparently made a successful leap from the economic laboratory to newspaper financial pages. The three indexes, published by Commerce's Bureau of Economic Analysis (BEA), are useful in analyzing economic interrelationships and in tracking current and prospective business conditions. These groupings of economic and business series should not be considered as a set of convenient, mechanical indicators, however, because they have limitations. They must be viewed in the context of other key economic information.

Recent experience provides a vivid example of the fallacy of trying to foretell economic events in the immediate future by reference to a single number. In the absence of other information, the substantial drop in the index of leading indicators in January—the sharpest decline in two years—might possibly be viewed as a sign of slowing in the rate of economic growth in the months ahead. However, the index obviously was seriously affected by the unusually cold weather and scarcities of natural gas in some areas. The coincident index also was adversely affected to some extent by the unusual weather conditions, but it now appears that economic activity will be stepped up in the spring months in order to compensate for the loss of production in the first quarter.

Changes in methodology

The technique for construction of the composite indexes was modified recently, following a major overhaul that took place over a period of several years. The performance of the new indexes, in retrospect, through major business cycles of the postwar period provides a framework for assessing their strengths and weaknesses. The results of such an assessment generally follow expected patterns, but the analysis also reveals some peculiar characteristics.

The leading index, composed of 12 series selected from among hundreds examined, is designed to foreshadow near-term changes in aggregate economic activity. The coincident index is an approximation of current economic activity and it may be viewed as a rough surrogate for monthly real Gross National Product. The lagging index is designed to provide confirmation of cyclical turning points. More importantly, it may provide helpful warning signals of imbalances that may be developing during an expansion period.

One of the most important of the recent modifications was an adjustment in the coincident index to make its long-run trend approximate that of real GNP. Similar adjustment factors are added to the leading and lagging indexes so that their long-run trends are equal to that of the coincident index.

Variation in signals

There are no hard and fast rules for interpreting the behavior of the composite indexes. For one thing, their signaling properties vary, depending on the stage of the business cycle. Based on postwar business cycle experience, the leading index tends to have a much longer lead time at peaks than at troughs.

The leading index cannot be used as a simple mechanical device to forecast the timing or magnitude of a recession. An examination of the past six cycles shows that the leading index provided a "signal" from 4 to 23 months before the downturn, with a median lead time of 10½ months (see table on page 4). The amount of the decline in the leading index prior to the peak in the general business cycle bears no consistent relationship to the severity of the recession, as measured by the fall in real GNP, the coincident index, or industrial production. A pointed example of this lack of relationship occurred during the most recent recession. From June to November 1973, which was the business cycle peak, the index fell 2.4 percent—the smallest decline in the leading indicators prior to any of the six postwar recessions. Yet, the ensuing recession was the longest and most severe of the postwar period, with real GNP declining 6.6 percent from the fourth quarter of 1973 to the first quarter of 1975.

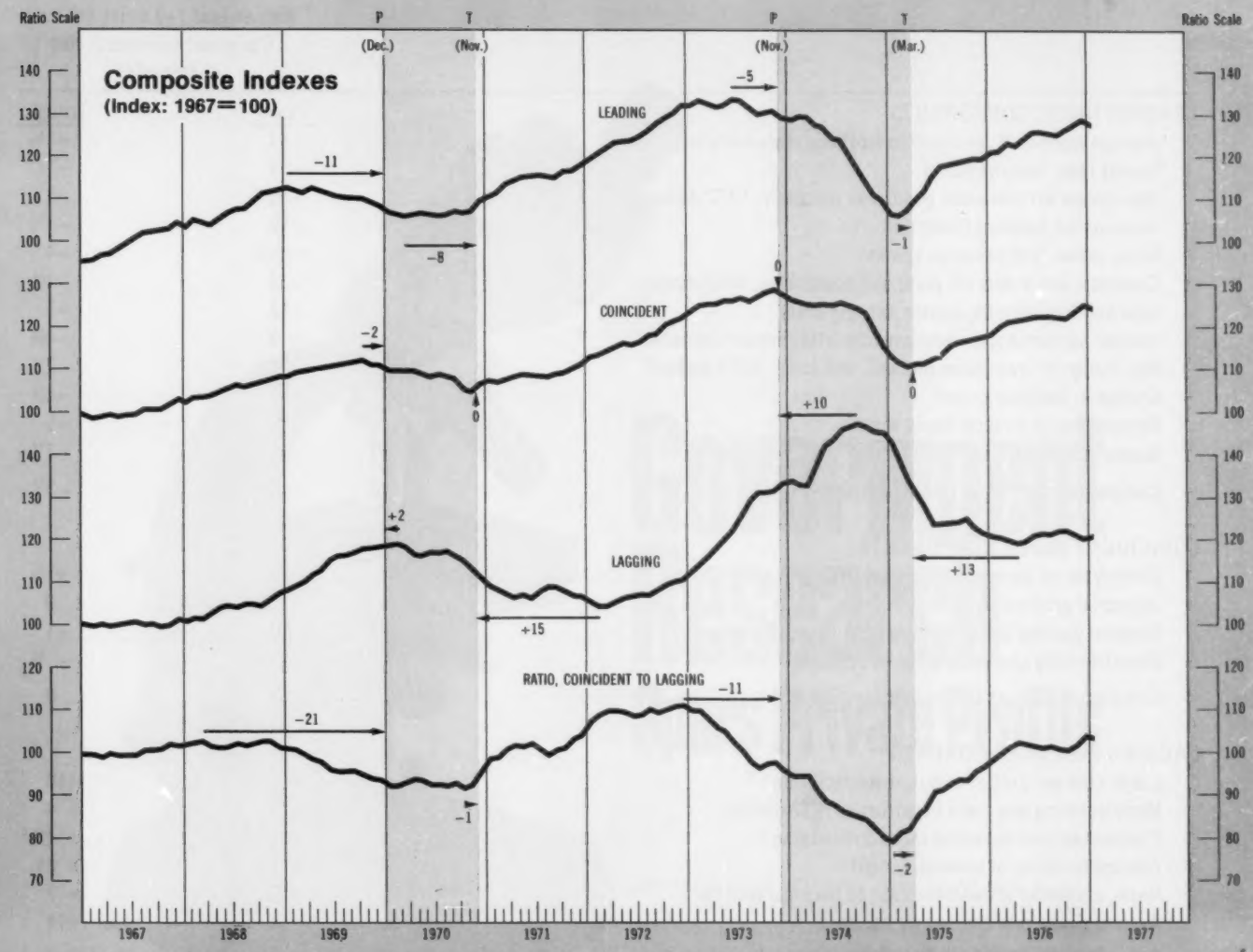
Other factors should be kept in mind. First, there is a one-month publication lag, followed by a period of several months during which the preliminary index may be revised significantly. One, and sometimes two, of the 12 indicators are not available at the first publication date, and further revisions are needed as more data on the various components become available. Second, decreases in the leading index over a span of at **least** three months seem to be necessary to detect an unambiguous signal as to whether an outright recession or a retardation in economic growth is in the making. It should also be recognized that a very long lead time at peaks complicates the task of designing and implementing countercyclical economic policies. The leading index tends to be more reliable at troughs than at peaks, with the lead time in signaling the past six recoveries ranging from one to eight months.

Relationship to GNP

The coincident index, representing employment, output, income and trade, tends to have a lead time of several months at business cycle peaks but is coterminous at troughs. There is an explanation why cyclical peaks in the coincident index do not always coincide with business cycle peaks.

A private organization, the National Bureau of Economic Research, is responsible for dating the periods known as business cycle expansions and contractions. According to the Bureau, a recession consists of contractions occurring at about the same time in many eco-

(Editor's note: For discussion of methodological changes, see Business Conditions Digest, *May 1975, November 1975, November 1976, and the forthcoming supplement to BCD, due in April or May.*



NOTE: P (peak) indicates end of general business expansion and T(trough) indicates end of general business recession; shaded areas represent recessions. Numbers on chart indicate length of leads (–) and lags (+) in months from these business cycle turning dates.

nomic activities. Depth and duration of the declines are equally important criteria. Thus, in addition to the four indicators that comprise the coincident index, the behavior of many other economic series is examined to determine the precise month in which an expansion ends and a recession begins. The entire procedure is somewhat judgmental, and business cycle turning points remain subject to historical revision.

Although the long-run trends of the composite indexes, as well as of real GNP, are approximately equal, the short-run or cyclical characteristics are different. Quarterly percent changes, on balance, are more volatile for the composite indexes than for real GNP.

The correlation among these series is not sufficiently precise to yield reliable forecasts. A statistical analysis covering the period, 1948 to 1976, revealed that more than 70 percent of a given quarterly rate of change in real GNP is associated with the change in the coincident index during the same quarter. On the average, changes in the leading index precede changes in the coincident index and real GNP by one quarter. About half a given quarterly change in the coincident index, and a little less than two-fifths of a given quarterly change in real GNP, is associated with the change in the leading index one quarter earlier.

A "rule of thumb" is that increases in the coincident and leading indexes at a 4 percent annual rate (about one-third of 1 percent per month) would be consistent with current and near-term growth in real GNP at an annual rate of 3.8 percent—roughly the postwar trend. Increases in the coincident and leading indexes above or below a 4 percent annual rate are statistically associated with a less-than-proportionate change in real GNP. For example, the findings indicate that an annual rate of increase of 8 percent in the indexes would be associated with an increase of only 5 to 6 percent in real GNP. The standard errors in the equations from which the above data were derived are relatively large, which underscores the necessity of using the leading and coincident indexes in a qualitative rather than quantitative manner to gauge changes in real GNP.

The lagging index

Unlike the leading index, which has a long lead at peaks, the composite lagging index tends to have a short lag at cyclical peaks in general business activity—a median of two months. The past recession was a major exception in that

	Median lead (–) or lag (+) over 6 postwar business cycles (months)	
	Peaks	Troughs
LEADING INDEX COMPONENTS		
Average workweek, production workers, manufacturing	–11	–1½
Layoff rate, manufacturing	–10	–1
New orders for consumer goods and materials, 1972 dollars	– 5½	–1½
Index of net business formation	–10	–1½
Stock prices, 500 common stocks	– 9½	–4
Contracts and orders for plant and equipment, 1972 dollars	– 8	–1½
New building permits, private housing units	–12	–5
Vendor performance, companies reporting slower deliveries	– 6	–4½
Net change in inventories on hand and order, 1972 dollars*	– 4½	–2½
Change in sensitive prices*	– 9	–4½
Percent change in total liquid assets*	– 9	–5
Money supply (M1) in 1972 dollars	–10	–7½
Composite index of 12 leading indicators	–10½	–3½
COINCIDENT INDEX COMPONENTS		
Employees on nonagricultural payrolls	– 1	+ ½
Industrial production	– 2½	0
Personal income less transfer payments, 1972 dollars	0	–1
Manufacturing and trade sales, 1972 dollars	– 2½	– ½
Composite index of 4 coincident indicators	– 2	0
LAGGING INDEX COMPONENTS		
Labor cost per unit of ouput, manufacturing	+ 8	+10
Manufacturing and trade inventories, 1972 dollars	+ 5	+ 4
Commercial and industrial loans outstanding	+ 1	+ 4½
Average duration of unemployment	+ 1½	+ 8½
Ratio, consumer installment debt to personal income	+ 5	+ 7
Average prime rate charged by banks	+ 4	+14
Composite index of 6 lagging indicators	+ 2	+ 7
RATIO, COINCIDENT INDEX TO LAGGING INDEX	–11	– 1½

*Series is a 4-month moving average (with weights 1, 2, 2, 1) placed on terminal month.

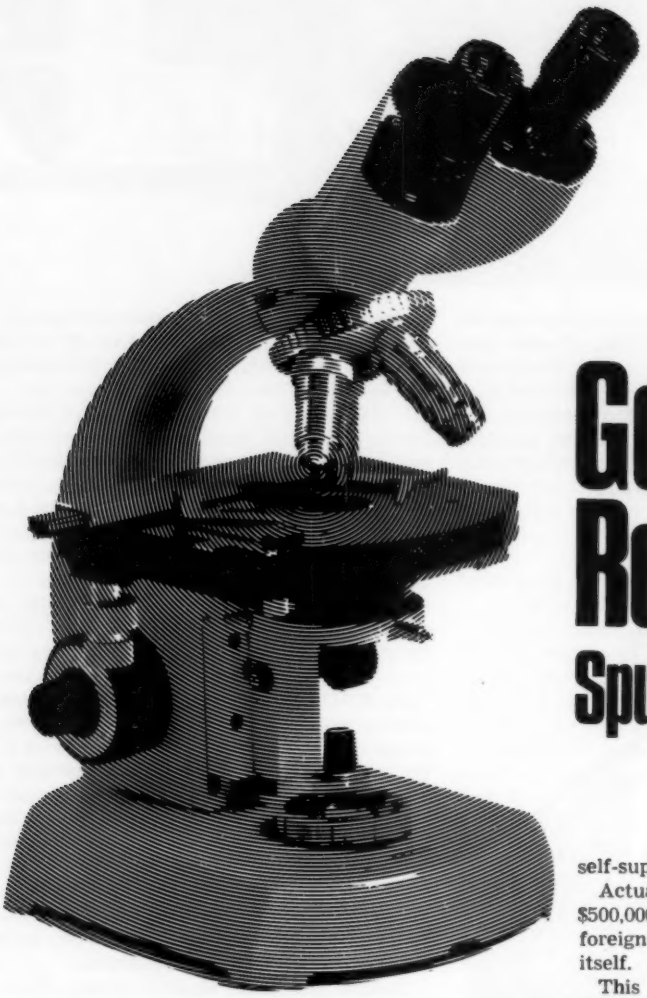
the lagging index did not turn down until 10 months after the business cycle peak. The lagging index tends to turn up well after the onset of recovery in overall business conditions. During the current recovery, which is two years old this March, the lagging index has been characterized by declining tendencies in most months. As a general matter, this suggests the absence of economic excesses. Often a relatively sharp rise in the lagging index reflects imbalances in various sectors of the economy, which may be followed by a decline in the leading index and subsequently in the coincident index.

One method of determining whether the lagging index is flashing a warning sign is to relate its behavior to that of the coincident index. Thus, the ratio of the coincident to the lagging index (now shown in *Business Conditions Digest*) has the properties of a leading index itself. At business cycle peaks, the median lead time of this derived leading index is virtually the same as that of the composite leading index—even though the two series are independently constructed. There are times, however, such as in 1973, when the ratio of the coincident to the lagging index reached its cyclical peak well before that of the leading index.

When the lagging index begins to rise at a faster rate than the coincident index, the ratio turns down, just like a leading index. This typically happens at an advanced stage of a lengthy business expansion. Towards the end of a recession, the coincident index tends to decline at a slower rate than the lagging index, causing an upturn in the ratio—thus signaling that recovery is at hand.

The current situation

The closing months of 1976 were characterized by a strong performance in the leading and coincident indicators, as well as in the ratio of the coincident to lagging index. This provided clear-cut evidence of a pickup in economic activity, and suggested that the economy was poised for a healthy rise in the first quarter of 1977. However, the severe weather conditions and disruptions of natural gas to industrial users caused a setback in these indexes during January. Early indications are that growth will be resumed as the quarter progresses.



Government Research Spurs Private Profits

A recent $20,000 royalty check received from the drug firm of Merck & Company for a new hepatitis vaccine was the first major payoff of a new Commerce Department technology transfer program. The vaccine was developed by Nobel laureate Baruch Blumberg while performing research for the National Institutes of Health (NIH).

With this new program, Commerce's National Technical Information Service (NTIS) is trying to introduce government inventions with commercial applications to the marketplace as part of the agency's role of promoting use of all unclassified technical material generated by government funds.

NTIS Director William T. Knox says "We don't generate technology, but we try to see that it gets used. Essentially, in our technology transfer program, we're trying to move inventions from the government laboratory into the private sector for commercial use."

Unlike every other government agency, NTIS has to support itself through its own efforts and without any federal appropriation. Thus, it can't afford to wait indefinitely for a new program to pay its own way. "I expect this program to be fully self-supporting five years from now," says Knox.

Actually, it's not a very large program—about $500,000 annually—half of which goes into getting foreign patent protection. But it still must support itself.

This particular program got under way at the request of other federal agencies who sought assistance in promoting the use of their inventions. This led to the decision to make use of a long-ignored Executive Order empowering the Secretary of Commerce to receive custody of foreign rights to inventions that other federal agencies did not seek to protect abroad. This provision had rarely been invoked, and consequently the foreign rights to much government-generated research had not been protected. Thus, much of the commercial potential that these inventions represented was being left undeveloped, or was being exploited by foreign firms without any benefit to the U.S.

"Our first task was to demonstrate that these inventions had commercial appeal," says NTIS Deputy Director Peter F. Urbach. "It was an open question at the time, and there was a lot of skepticism, even within our own agency. We let some contracts to disinterested outside firms, under which they evaluated a wide range of government patents and picked out the ones that seemed to have the most commercial potential. They prepared promotional brochures and mailed them to selected private organizations. The strong response told us that the interest certainly was there.

Federal policy on royalties varies from agency to agency.

"That led to a weekly newsletter—*Government Inventions for Licensing*—which lists all new government inventions, new patents and newly-filed patent applications, with a notation to indicate which ones are believed to have the greatest commercial potential. The weekly newsletter lists the 2,500 new government inventions produced each year. It now has several hundred paid subscribers.

"Next we contacted other federal agencies about transferring the foreign patent rights to their inventions to NTIS. We've already made agreements along those lines with the National Bureau of Standards and Departments of Interior, Agriculture and HEW. Negotiations are currently under way with several other agencies, including the Defense agencies who are responsible for the majority of the inventions developed each year by federal researchers.

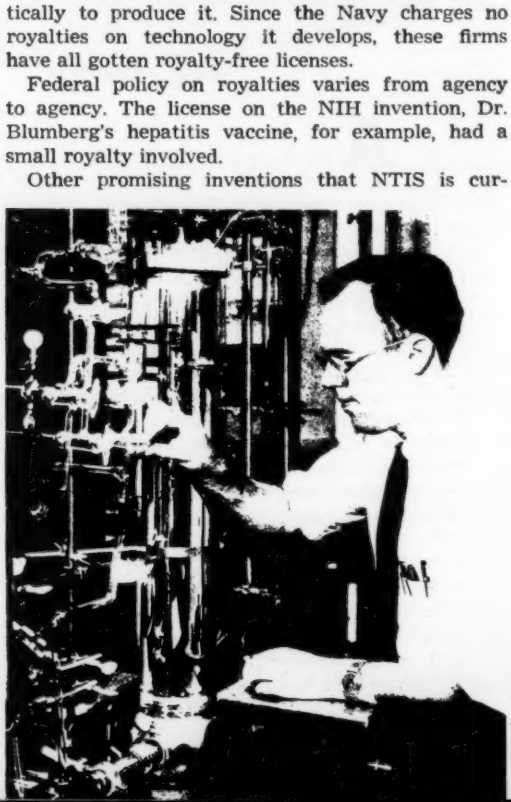
"By obtaining foreign patent protection on government inventions, NTIS and the originating agency are able to offer U.S. businessmen world rights to new government technology instead of just a U.S. license. Where no U.S. firm is interested in exploiting the technology and foreign firms are interested, the U.S. Government receives a royalty from the foreign user instead of having the government technology used abroad with no return to the U.S."

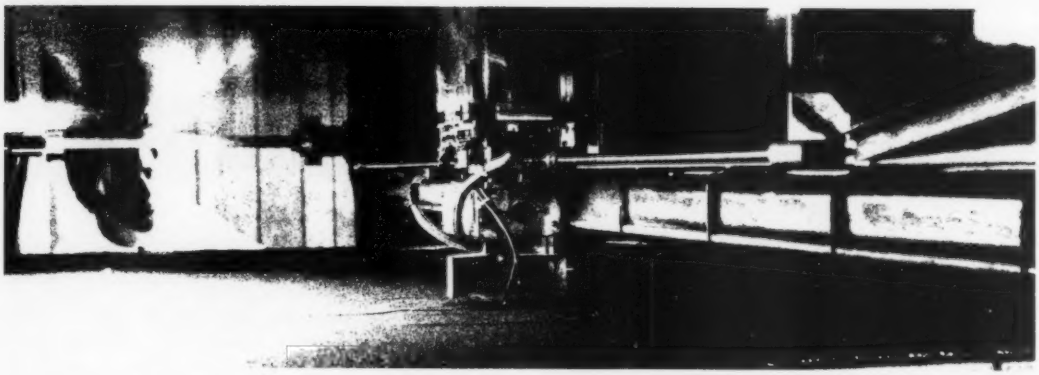
NTIS technology transfer specialist George Kudravetz has begun sounding out the directors of federal research labs and asking them directly if they have any "hot" new technology that might have commercial applications. "We're finding a surprising amount of material, varying from automated wheelchairs to an anti-fouling paint for ship bottoms," says Kudravetz.

"That paint and the hepatitis vaccine are our outstanding success stories to date. The Navy, which had developed the paint, was very helpful in promoting it through a seminar at the Naval Ship R&D Center in Annapolis," he says. The invention had previously been described in an article written by the Navy inventors in a technical journal. The journal article however did not lead to any industry interest. It took the NTIS-Navy seminar and extensive NTIS promotion to bring the new development to the attention of U.S. industry. As a result of these NTIS efforts, some 16 U.S. firms have now been licensed domestically to produce it. Since the Navy charges no royalties on technology it develops, these firms have all gotten royalty-free licenses.

Federal policy on royalties varies from agency to agency. The license on the NIH invention, Dr. Blumberg's hepatitis vaccine, for example, had a small royalty involved.

Other promising inventions that NTIS is cur-





The laser, a glamor technological development of the space age, is the heart of a commercial fabric cutter described as the first major advance in apparel manufacturing since the invention of the sewing machine.

rently seeking to license include an improved artificial lung membrane from NIH, a self-calibrating electro-chemical chlorine monitor developed by the National Bureau of Standards and an ultra-high absorbent polymer derived from flour developed by the Department of Agriculture.

These inventions are all first announced in *Government Inventions for Licensing*. Initially they are all available for licensing on a non-exclusive basis, which means that any number of firms can make use of them. In cases such as the Navy's anti-fouling paint, where little further development work is required to come up with a marketable product, and where several firms are interested, the invention is licensed to all interested firms on a non-exclusive basis.

But in cases involving extensive further development work and expenditure of funds before coming up with a finished product, and where there is a risk that these funds may not be recovered by the sale of the product, firms are understandably reluctant to undertake the risks until assured they will reap the full reward for their efforts.

Accordingly, once an invention has been made available on a non-exclusive basis for six months and no takers have been found, it can then be made available to a single firm on an exclusive basis for five years only. "But first we must prove no one's interested in it on a non-exclusive basis," says Knox.

The firm interested in an exclusive license on a government invention must submit an application which includes a description of how the invention will be exploited and what resources the firm will use to bring the invention to market. After six months, if no one is interested in a non-exclusive license, NTIS can consider granting an exclusive license.

If several firms are interested in an exclusive license and none is willing to accept a non-exclusive license, the individual plans for the exploitation of the invention will serve as the basis for deciding which applicant gets the exclusive license.

Announcement of a new invention available for licensing in the weekly NTIS Bulletin is generally not sufficient to trigger industry interest in the invention. Additional announcements and promotion efforts are made on those inventions that appear particularly promising.

Approximately 200 inventions per year are selected as having the greatest commercial potential. These are then described in one page bulletins known as *Selected Technology for Licensing*. In addition to announcing the invention, the bulletins attempt to provide some insight into the commercial potential for the invention and possible areas of application.

The *Selected Technology for Licensing* bulletins are distributed through a new NTIS subscription service, *Tech Notes* (see back cover), which announces much of the government's new technology —patented and unpatented. In addition to being made available on a subscription basis, *Selected Technology for Licensing* is also distributed to nearly 100 trade publications which republish the bulletin to make their readers aware of the latest available government technology.

Finally, where the licensing potential of the invention warrants it, NTIS directly contacts prospective licensees, making them aware of the availability of the new technology and seeking to interest them in licensing the inventions.

"We've also broken completely new ground in rewarding government-employee inventors for their contributions and for their help in transferring their new technology to private users. Prior to this, it was customary for agencies to give the foreign rights on federal employee inventions to the inventors themselves as a reward.

"In actual fact, the inventors were usually in no position to do anything with those rights. For the most part they were civil servants living from payday to payday, without the slightest prospect of being able to raise the $3,000-$5,000 it takes to protect an invention for the first couple of years in the dozen-or-so countries with the markets to take advantage of it.

"The inventors also were in no position to find the licensees who could convert their inventions into commercially-viable products. These inventions don't attract licensees the way flypaper attracts flies. Just because you build a better mousetrap, the world doesn't necessarily beat a path to your door," according to Knox.

"Under the technology transfer program, NTIS bears the foreign filing costs for what we believe are the commercially-attractive inventions. We also actively seek out the licensees. Then once the new technology is licensed, we reward the inventor with a share of some of the royalties. The maximum award is 15 percent of the royalties, and the minimum is $300.

"We're hoping that this Incentive Awards Program, plus the knowledge that their inventions are now more likely to be used in the commercial marketplace rather than sitting on the shelf, will spur federal researchers into producing and reporting more and better inventions."

INDUSTRY'S DILEMMA -

Requirements for cleaner air and water provided for in laws already in effect will call for substantial increases in use of energy by several major industries, making the attainment of the energy conservation goals set for these industries much more difficult.

Such is the finding of studies made by Commerce's Office of Environmental Affairs. Divided into two phases, the first study undertakes to describe and measure the amount of energy which may be used for pollution control by the respective industry. The second attempts to examine and evaluate the consequences of alternative federal policies as well as the potential for energy-conserving technologies available between 1977 and 1983.

Studies conducted thus far for the iron and steel, primary aluminum, pulp and paper, and fossil fuel steam electric generating industries indicate that pollution control requirements scheduled to go into effect by 1983 will increase energy use within these individual industries from 2.8 to 10 percent. It depends upon the stringency of the regulations imposed under the general terms of laws now on the books. A Phase Two study of the iron and steel industry is in progress and scheduled for completion this fall.

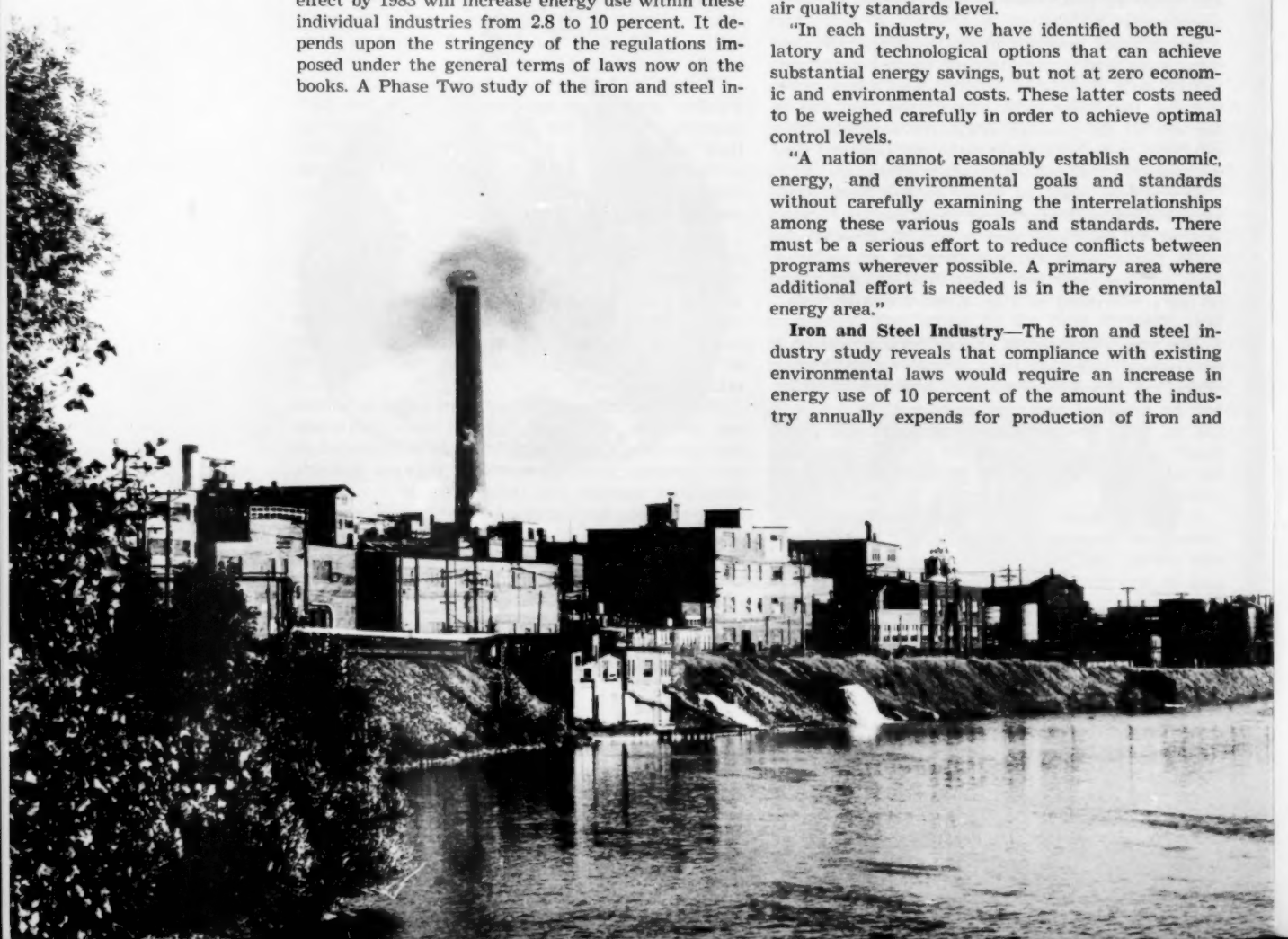
The studies point to alternatives which would use much less energy while still achieving high levels of pollution control. The Office of Environmental Affairs intends to continue its studies in order to identify environmentally safe ways of reducing industry's energy use which would be acceptable economically and socially.

In a recent speech before the Atomic Industrial Forum's meeting on "United States Energy Policy," Dr. Sidney R. Galler, Deputy Assistant Secretary of Commerce in charge of the Office of Environmental Affairs, noted that "incremental energy requirements increase very rapidly as we approach the application of the best available control technology level. At this control level, the energy efficiency in terms of amount of pollutants removed, relative to energy demand, is much less than at the best practicable control technology level or ambient air quality standards level.

"In each industry, we have identified both regulatory and technological options that can achieve substantial energy savings, but not at zero economic and environmental costs. These latter costs need to be weighed carefully in order to achieve optimal control levels.

"A nation cannot reasonably establish economic, energy, and environmental goals and standards without carefully examining the interrelationships among these various goals and standards. There must be a serious effort to reduce conflicts between programs wherever possible. A primary area where additional effort is needed is in the environmental energy area."

Iron and Steel Industry—The iron and steel industry study reveals that compliance with existing environmental laws would require an increase in energy use of 10 percent of the amount the industry annually expends for production of iron and



BALANCING ENERGY SAVINGS WITH POLLUTION CONTROL

steel. This requirement translates to 323 trillion Btu's annually, or the equivalent of 161,000 barrels of oil a day. The environmental laws include the 1983 water pollution control standards, present visible emission air pollution control standards, and current solid waste disposal requirements.

Other findings with respect to the industry were:

- In-plant air and water pollution controls account for 295 trillion Btu's of the total.
- Pre-plant and post-plant energy consumption associated with the operation of the in-plant pollution control equipment makes up the other 28 trillion Btu's.
- Air pollution control accounts for 60 percent of the in-plant energy consumption for environmental control. Two-thirds of the energy used to control air pollution will be used to control fugitive emissions; that is, emissions vented through the building rather than through the stacks or other exhaust point sources.
- The annual cost estimate for the energy required to drive the pollution control facilities was estimated at $650 million, exclusive of capital and other operating costs, and based on 1972 production levels and 1975 energy costs.
- A forecast of growth in production levels by 1983 is expected to increase energy consumption for environmental control by an additional 72 trillion Btu's, raising the total to 395 trillion, or 197,000 barrels of oil per day equivalent.

The study suggests that the following savings in energy use by the iron and steel industry could be accomplished by alternatives to environmental requirements:

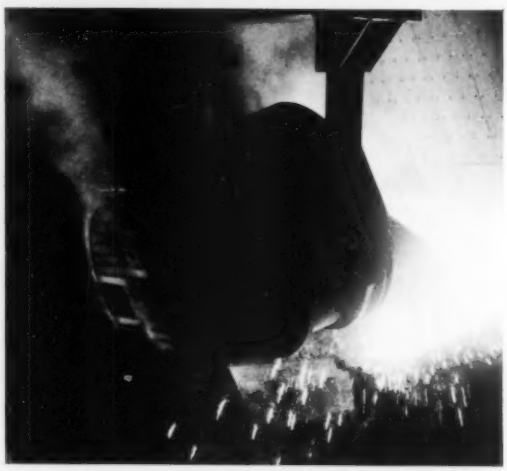
—Energy consumption for air pollution control could be cut 50 percent, or 98 trillion Btu's annually, by lowering state-enforced visible emission standards to (1) a point source standard based on a representative process weight equation, and (2) a fugitive emission standard which requires a 50 percent reduction in uncontrolled emissions.

—Energy consumption for water pollution control could be reduced by two-thirds with the retention of the 1977 standards and the use of cooling ponds rather than mechanical draft wet towers.

Primary Aluminum Industry—Compliance with existing environmental laws will increase energy use by the primary aluminum industry under different base assumptions an estimated 2.8 to 8.5 percent, depending on the stringency of the standards imposed under the laws.

A study for this industry finds:

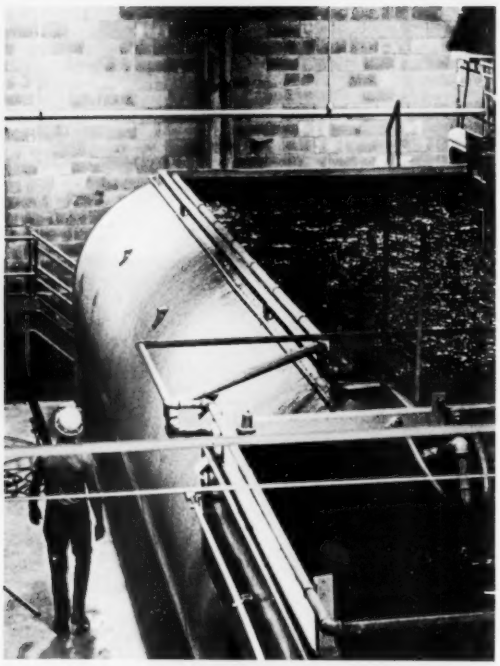
- Direct energy consumption for the operation of on-site air pollution control facilities in 1972 is estimated at 1.14 billion kilowatt hours, or 1.5 to 1.8 percent of total plant energy requirements.
- Installation of mandated air pollution controls under the state implementation plans pursuant to the 1970 Clean Air Act will increase pollution control energy requirements to 2.21 billion kilowatt hours, or 2.8 to 3.6 percent of total plant energy requirements.



Compliance with existing environmental laws would require an increase in energy use of 10 percent for the iron and steel industry; up to 8.5 percent for aluminum.

- New plants would consume approximately 529.8 kilowatt hours per ton of aluminum produced in order to meet the new source performance standard of two pounds of fluoride emission per ton of aluminum.
- Approximately 0.58 billion kilowatt hours would be needed for air pollution control for the 1.1 million tons per day of new capacity forecast by 1980.
- Overall control of fluoride emissions under the state implementation plans is approximately 90 percent. The imposition of the two pound fluoride standard to all aluminum plants would increase overall control to about 95 percent.
- Energy consumption per pound of fluorides removed from plant exhausts increases as much as 16 times if a secondary air control system scrubber should be required.
- Pollution control energy requirements would increase to 5.30 billion kilowatt hours, or 6.7 to 8.5 percent of total plant requirements, if the new source standard of two pounds of fluoride per ton of aluminum were imposed on all existing sources.

The study suggests that application to existing facilities of a set of specified multiple fluoride emission limitations which would not require the installation of secondary air scrubber systems would result in environmental energy requirements of 2.4 billion kilowatt hours, or 3 to 3.8 percent of plant energy needs, significantly lower than the two pounds of fluoride per ton standard.



Recent studies undertake to describe and measure the amount of energy which may be used for pollution control such as this sewage plant in Maine.

On the basis of these findings, Dr. Galler concludes that "the amount of energy for air pollution control is substantial and may more than double, depending on what additional fluoride controls are imposed on existing plants.

"Further examination of environmental and economic trade-offs associated with energy-conserving regulatory options for control of fluoride emissions from aluminum plants is needed so that the controls adopted reflect the best balance of national environmental, economic and energy objectives."

Pulp and Paper Industry—An increase in energy use by the pulp and paper industry of approximately 3 percent is required to achieve 1977 air and water pollution control levels. A 5.5 percent increase is required to achieve the 1983 level of control.

"... the amount of energy for air pollution control is substantial and may more than double, depending on what additional fluoride controls are imposed ..."

Preliminary findings of a study for this industry still in draft stage finds:

- The total energy requirement for achievement of the 1977 effluent limitation of "best practicable control technology currently available" is 117 billion Btu's per day.
- To achieve the 1983 effluent limitation of "best available technology economically achievable" would require an increase in energy to 221 billion Btu's per day.
- Increased energy requirement of 10.1 billion Btu's per day will be necessary for operation of effluent filtration systems to achieve the 1983 control level.
- Wastewater color removal may require an additional 71.1 billion Btu's per day.
- An increased energy requirement of 45 billion Btu's per day would be necessary for projected 1983 expansion to achieve the new source performance standard for particulate control.

For air pollution control, the total energy requirement for the industry's compliance with typical state standards is 77.7 billion Btu's per day.

This requirement would increase to 144.1 billion Btu's per day by 1983 to enable expanded and replacement facilities to achieve the new source performance standard.

The study suggests the following alternatives and areas for further investigation believed to indicate possible opportunities for energy savings:

—Improved wastewater reuse would save more than 500,000 Btu's per 1,000 gallons from heat savings alone. Pumping costs averaging 127,000 Btu's per ton of product could be reduced.

—Reduction of effluent color loads through bleach sequence modifications would cut down the loading on external color removal systems. This reduction would save up to 1,000,000 Btu's per ton of product.

—Reducing raw waste loading by modifying in-plant processes may enable 1977 treatment systems to approach 1983 effluent standards. This approach would reduce substantially the additional 96,000 Btu's per ton of product required to achieve the 1983 effluent standard.

—Combining filter press dewatering and pressing action indicates a potential saving of 45,000 Btu's per ton of product on sludge disposal as opposed to vacuum filters.

—Improved design and operation of electrostatic precipitators on recovery furnaces would save 35,000 Btu's per ton of product.

—Control of total reduced sulfur emissions by optimized mud washing or addition of caustic to kiln scrubbers would save approximately 330,000 Btu's per ton of product.

Fossil Fuel Steam Electric Generating Industry—Compliance with existing environmental laws will increase energy use by the fossil fuel steam electric generating industry from 4.4 to 8.5 percent of normal operating energy consumption by the industry by 1983, depending on the stringency of the requirements.

Preliminary findings include the following:

—The smallest amount of additional energy needed to meet anticipated regulations would be 3.8 percent for sulfur dioxide control, 0.5 percent for waste heat control, and 0.1 percent for particulate control. The largest anticipated amount would be 7.2 percent for sulfur dioxide, 1.2 percent for waste heat, and 0.1 percent for particulate control.

—The energy requirement for sulfur dioxide control approximately doubles in going from attainment of ambient air quality standards, designed to protect health and welfare, to compliance with new source performance standards. There is also a substantial increase in energy requirements in moving from ambient air quality standards to best available control technology.

So far as energy conservation goals for different industries are concerned, the targets that have been set range from 10 percent for primary metal industries to 27 percent for textile mill products.

Energy Digest

ENERGY-SAVING MODEL . . . A model energy conservation building code that could save substantial amounts of energy and money if adopted by each state, is being prepared by the Energy Research and Development Administration and major national building code organizations. The new code is designed to be incorporated into existing state and local codes for all new buildings. It sets minimum energy-efficiency requirements for new building design and construction, heating, ventilating and air-conditioning systems, electrical systems, lighting and water heating. A preliminary version of the code has been completed and comments are sought from state and local officials, as well as other representatives of the building industry. A recent study for the Federal Government concluded that the technical standards upon which the code is based could cut yearly energy use in new buildings by nearly 27 percent without increasing construction costs, if adopted by all states and localities. For copies of the preliminary code, contact: The National Conference of States on Building Codes and Standards, 1970 Chain Bridge Rd., McLean, Va. 22101 (703-790-5750).

LIGHT INDUSTRIES . . . A recently-published Energy Management Guide for Light Industry and Commerce describes simple methods whereby managers of small businesses can analyze their energy use, determine the areas where energy savings are possible, and estimate the magnitude of such savings. Prepared by two Commerce agencies, the National Bureau of Standards and the Domestic and International Business Administration, the 23-page booklet is available for 70 cents from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

ENRICHMENT COSTS LESS? . . . A method for enriching fossil fuels with oxygen while reducing energy demands in combustion systems has been reported by Chemetron Corp. The system is designed for combustion systems using natural gas, wood, coke and oils in processes such as blast furnaces, cupola furnaces, and other high temperature operations. The Howard, Pa., firm's oxygen ratio controller combines electronic and pneumatic controls for automatic regulation and control of oxygen in an all-oxygen mixture at a present level, and is intended to replace the more cumbersome mechanical flow monitoring devices which require manual adjustment, according to a company spokesman. "Our experience has been that the use of 3 to 4 percent oxygen enrichment rate can provide a fuel savings from a low of 13 percent when used in drying ovens to a high of about 33 percent when used in forging furnaces," he said.

TWO-EDGED SWORD . . . A study by the University of Texas Graduate School of Business reports that American workers may have to pay a stiff price for the undoubted benefits that would result from limiting the weight of U.S. automobiles to 2,500 pounds. While agreeing that such a limitation would yield significant savings in oil, reduced use of scarce natural resources in construction of the cars, and fewer pollutants spewed into the nation's water and air, the report says it would probably cost more than one million workers their jobs over the next decade or two, with a resultant loss of more than $12 billion in household incomes.

STORING IT UP . . . A New Hampshire medical center expects to save $1 million in energy costs over the next decade from what is believed to be the nation's largest "off-peak" electric thermal storage system. Promoted by the Public Service of New Hampshire, the local electric utility, the system involves electrically heating large quantities of water in steel tanks during periods of lower electrical demand. The stored heat is then passed through heat exchangers to warm the building and provide hot water as needed during the rest of the day. Thus, the Catholic Medical Center of Manchester and the 16 other smaller installations in Public Service's area using the system will pay the lower rates charged for off-peak power, while Public Service's projected peak load will be reduced by about 1 percent. Designed by the Megatherm Corp. of East Providence, R.I., the system also means that all energy supplied is produced by the most efficient generating stations, rather than the units which have to be pressed into service to satisfy peak demand.

Domestic Business Report

Seven Industries Report Varied Weather Impact

SURVEY OF MAJOR FIRMS FINDS SOME STAGGERED, OTHERS UNSCATHED DURING SEVERE WINTER OF 1976-77

Old Man Winter seems to have been selective in his treatment of industries in the Eastern United States—practically flattening some during the recent extreme cold wave while leaving others practically unscathed.

This was the general thrust of a Commerce Department telephone survey of large firms in seven key industrial sectors.

Although the survey provides excellent insights into how the largest segments of certain industries were affected, these data do not necessarily represent the industries as a whole.

The survey, which was conducted by the Office of Business Research and Analysis during the week of February 6, found:

• *Steel*—Reports from six companies, accounting for more than 66 percent of total domestic steel activity, showed that weather conditions and fuel disruptions caused sporadic curtailments and employment losses. Hard data were not readily available; however six companies indicated a loss of 4,400 jobs (40 percent) in New York State; 4,200 jobs (36 percent) in Alabama; 5,100 jobs (15 percent) in Ohio; and a 3,500 job decline (7 percent) in Pennsylania.

• *Copper*—Four major copper refining and smelting companies, accounting for 70 percent of the total industry, indicated a very marginal impact, since the facilities generally are located outside of areas affected.

Six major brass mill manufacturers, accounting for 60 percent of the total industry, reported severe impacts, with employment losses ranging from 18 to 96 percent.

The copper wire mill sector was impacted minimally, according to seven firms accounting for 50 percent of the total industry.

• *Aluminum*—Reports from companies accounting for two-thirds of the nation's primary aluminum industry indicated minimal disruption in the Eastern facilities.

• *Chemicals* — A survey of 25 companies, accounting for more than 50 percent of total U.S. chemical industry shipments, excluding ammonia, indicated minimal employment or production disruptions. Only 1 percent of the chemical workforce had been affected and for relatively brief periods ranging from two days up to ten days for firms requiring alternative fuels. Widespread substitution for natural gas and arrangements to obtain emergency supplies of alternative fuels were the major reasons for the limited impact.

In ammonia plants, which depend on natural gas as a feedstock, a plant-by-plant survey of 95 facilities disclosed a severe impact on production, although the employment impact was minimal due to the relatively low labor-intensity of this industry.

• *Glass*—The three major glass industries, consuming 200 billion cubic feet of natural gas a year, experienced varying production cutbacks due primarily to shortages of natural gas and in some cases other fuels. Most of the affected plants expected to resume normal operations by mid-February. The impact was minimized by conversion in some plants to alternative fuels.

Based on reports from large companies accounting for about 50 percent of sales, plants in the pressed and blown glass ware industry experienced severe, but relatively short-lived curtailment in production and employment, primarily in Ohio and West Virginia. It is estimated that more than one-fourth of this industry's total employment in these states was affected for varying periods of time.

Based on responses from large companies accounting for over half of sales, the glass container industry experienced substantial, but temporary, production curtailments in a number of plants in the Eastern half of the country.

A substantial, but temporary, disruption in Ohio production of tempered

IF WINTER COMES—*The effects of this winter's severe weather were felt in varying degrees by different industries, according to a Commerce survey.*

glass (for use in automobiles) occurred due to gas shortages. Production of other types of flat glass in Ohio and elsewhere was not seriously affected by the cold spell, since most of the other flat glass producers are able to substitute other fuels.

Prior conversion to other fuels in the three major glass sectors prevented a more serious impact this winter.

• *Farm equipment*—Based on responses from large firms accounting for 65 percent of the farm machinery industry, the recent gas shortage and cold weather had minimal impact in Eastern facilities. About 500 persons were laid off for about a week.

Most of the large companies in the farm machinery industry had already converted from natural gas to coal or other energy sources in anticipation of severe winter weather.

• *Motor vehicle and equipment industry*—The motor vehicle and motor equipment industries were hard-hit by the severe winter weather and fuel curtailment, according to replies received from the three largest automobile manufacturers and three large parts producers.

Employment curtailment in these plants peaked at 100,000 during the week beginning January 31, then dropped to almost 80,000 by February 4. By February 7, the major portion of the affected plants had resumed either normal or near-normal operations and the number of furloughed workers was expected to drop to approximately 16,000 as of February 12.

The industry anticipates that the major portion of the lost production of 190,000 vehicles will be made up in the coming months.

SECRETARY KREPS PLEDGES COMMERCE RESOURCES TO AID CITIES

Commerce Secretary Juanita M. Kreps has pledged the resources of Commerce Department agencies, and particularly the Economic Development Administration (EDA), to the task of restoring the nation's needy cities to economic health.

In a recent address before the Congressional City Conference of the National League of Cities, held in Washington, Secretary Kreps said she was not satisfied with the department's record in meeting urban needs.

"It is my goal," she said, "to make the Department of Commerce a more effective instrument of national economic policy, and in doing so to bring the department's resources to deal with what the president has referred to as the nation's number one problem: our cities."

Mrs. Kreps referred to the EDA as "the focal point of our nation's urban and regional economic development policies.

"It provides," she said, "the tools—public works assistance, loans for land assembly and site preparation, business loans, economic planning grants, and technical assistance—to encourage private investment in depressed areas.

"Recent amendments to EDA's legislation strengthened our urban programs, making flexible EDA assistance available to most major urban centers. The effect of these amendments is clear: a greater share of EDA's funds will be available to needy cities, and we will have some flexibility in providing assistance in ways that are useful to you. The changes provide a fine opportunity for federal, state, and local governments to build the partnership necessary for revitalizing the nation's cities . . .

"We need to streamline some programs and to bring more of our resources directly to the assistance of cities. We are committed to expanding employment, revenues, and sales so that cities can take care of their own problems. The tools they are presently applying may not be the best we can devise, however, and I look to you to help us consider whether we need new ones.

"Two years ago, an official of the previous administration told the press that the urban crisis was over. You will hear no such nonsense from this administration."

The Federal Government, Mrs. Kreps said, "does not have the resources to solve these problems by fiscal transfusion. Unless we are simultaneously working to make our declining cities economically well again, there can be no solution.

"Urban economic policy cannot be confined to mailing revenue sharing checks on time, nor to helping house and feed the poor, combat crime, or support the schools. Each of these is essential, and in many cases the need is critical. Now is the time, however, when we must decide how to make our cities economically viable once again. Failure to rectify the underlying economic distress of thousands of America's older towns and cities has in recent decades encouraged the view that much of what has been invested by the government has been wasted."

Mrs. Kreps said these underlying problems will be considered in coming months. One forum for this analysis, she said, will be the White House Conference on Balanced Growth and Economic Development, which is now in the planning stage.

"In the course of the preparatory work," she added, "local and state officials will have an opportunity to share their analyses and prescriptions with our department and others concerned with domestic economic problems. In planning the conference, Commerce will work closely with the Department of Housing and Urban Development . . .

"The nation's economy is perhaps the most important consideration for the cities, as well as the nation. Some of our cities and towns have long had difficulties. But the disastrous and prolonged recession, combined with the inflation of the past eight years, has weakened their capacity to maintain their earlier levels of service and the quality of life of their citizens. We cannot have true recovery while some groups of Americans remain in a condition of poverty.

"No trick of statistical medians can hide the fact that structural unemployment, low incomes and small business failures have been heavily concentrated in the older cities and towns."

Department has resources

The Secretary listed the following resources that Commerce brings to urban economic redevelopment and balanced growth:

• The Office of Minority Business Enterprise (OMBE), which is working with other agencies and groups to help disadvantaged persons to establish businesses, including technical and managerial assistance;

• The National Fire Prevention and Control Administration, which is active in the field of fire safety;

• The United States Travel Service, which encourages states and cities as well as industry to promote travel to the United States from abroad;

• Economic adjustment tools supplied to communities facing dislocations due to rapid growth associated with energy development projects;

• Coastal Zone legislation which is helping communities to prepare for the rapid growth that will accompany offshore oil development, and protect environmental resources from poorly planned development;

• The 64 Domestic and International Business Administration field offices that often are called upon to help municipal planning projects;

• The Census Bureau, which is preparing for the first mid-decade enumeration.

"Fostering new businesses," Mrs. Kreps said, "is good for America as well as for cities. In cooperation with other agencies, we intend to draw on the department's resources to help enterprising men and women, black Americans, the Spanish speaking, the young and the old—those who want to revitalize an obsolete enterprise as well as those who would begin an entirely new one. Our field offices will be fully supportive of municipal and state business efforts."

AWARDS PRESENTED FOR ECONOMIC GROWTH WITH ENVIRONMENTAL QUALITY

The first National Environmental Industry Awards for outstanding achievement in economic growth with environmental quality have been made by the Environmental Industry Council and the President's Council on Environmental Quality. The recipients are:

Top industry award for environmental achievement—Boston North Shore Project, operating as the Refuse Energy Systems Co. of Saugus, Mass. The system converts up to 1,200 tons of garbage a day to steam for commercial use, serving 12 communities on Boston's North Shore. The plant was designed and constructed and is owned and operated by Wheelabrator-Frye, Inc., of Hampton, N.H.

Land reclamation award—Erie Mining Co., Hoyt Lakes, Minn. The company instituted an experimental project that led to successful revegetation of an area of infertile mining wastes.

Noise abatement—Long Island Lighting Co., New York. The utility's noise-reduction efforts led to the design of a totally enclosed power station that includes special low-transmission walls and numerous noise-control features. Three noise-controlled steam generating plants are now in operation in the Northport, N.Y., area, with a fourth under construction.

Air pollution control—Volvo of America Corp. Volvo's California 1977 240 series cars are the first production line cars in this country to meet the auto emissions standards established in the Clean Air Act of 1970, during 4,000-mile tests.

Water pollution control—Great Lakes Paper Co., Thunder Bay, Ontario. The firm devised an economical internal water treatment system that recovers heat and raw material and discharges essentially clean water.

The awards were presented at the first environmental industry conference —Economic Growth With Environmental Quality — held recently in Washington, D.C. Approximately 250 top executives from major pollution control manufacturing firms, economists, health specialists and environmental experts of the new Administration and Congress gathered to exchange ideas on the critical economic/environmental decisions ahead.

The conference was sponsored by the Environmental Industry Council, a nonprofit industry association of corporations which manufacture environmental protection equipment or material.

Topics covered included economic forecasting from Harvard economist Otto Eckstein, former member of the President's Council of Economic Advisers; a look at the future of the environmental industry from Craig Lentz of Arthur D. Little, Inc.; a study of the future environmental costs of key industries by Ronald G. Ridker of Resources for the Future; priorities of the new Congress from Rep. Paul Rogers (D-Fla.); and the public's position, by Harry W. O'Neill of Opinion Research Corp.

Other featured speakers included William D. Ruckelshaus, the first head of the Environmental Protection Agency and now senior vice president of Weyerhaeuser Co.; Herman Kahn of the Hudson Institute; Sen. Jennings Randolph (D-W. Va.), chairman of the Environment and Public Works Committee of the U.S. Senate; and Stuart Eizenstat, special assistant to the President for Domestic Affairs and Policy.

Panels of industry and government representatives took up alternatives and tax incentives for the financing of pollution control, the impact of pollution control technology on industry productivity, the hidden costs of pollution and views from individual states.

Accelerated Processing Of Patents On DNA Research Inventions Suspended

Commerce is temporarily suspending accelerated processing of patent applications for recombinant DNA research inventions, according to Secretary of Commerce Juanita M. Kreps. However, Commerce's Patent and Trademark Office will, when requested, continue accelerated processing of patent applications for laboratory equipment that contributes to safety in this field.

The temporary suspension, announced jointly by Secretary Kreps and Secretary of Health, Education and Welfare Joseph A. Califano, Jr., was put into effect while the Federal Interagency Committee for Recombinant DNA Research considers recommendations concerning private research in this field.

Recombinant DNA research involves the joining in the test tube of pieces of DNA—the material which determines the hereditary characteristics of all living cells—from the same organism or different organisms. The newly joined molecules are then inserted into living organisms, such as bacteria. The recombinant DNA may affect the form and function of the offspring of such combinations.

Secretaries Kreps and Califano defined the potential benefits from the research as "major advantages in understanding the mechanism of heredity and the development of new compounds to treat many diseases. Potential dangers include the possibility that hazardous agents might be produced in the course of such research."

The National Institutes of Health published guidelines for the safe conduct of this research in federal laboratories.

The Patent Office had published a notice on January 13 concerning accelerated processing of patent applications on inventions in this research field.

The Interagency Committee of Recombinant DNA Research, headed by NIH Director Donald S. Fredrickson, will soon make recommendations on appropriate legislation or regulations to govern the conduct of this research in all public and private U.S. laboratories.

Performance Criteria Of Solar Energy Revised

As more and more concrete data about solar energy's performance during actual everyday use becomes available, Commerce's National Bureau of Standards is setting more meaningful criteria regarding its use. Just recently, NBS published its first revision to the interim performance criteria for commercial solar heating and cooling.

These criteria had been developed by the National Aeronautics and Space Administration in 1975, and will be further updated by NBS as new data become available. The criteria are being used for the design, development, technical evaluation and procurement of solar heating and cooling systems to be installed in commercial buildings.

Similar criteria for residential heating and cooling systems are also available.

The interim criteria are designed to:

- Provide designers, manufacturers and evaluators with technical performance criteria for the commercial solar heating—cooling demonstration program;
- Establish technical performance levels that will be used for the evaluation and procurement of systems, subsystems and components for the commercial program, and
- Provide a basis for the development of more definitive performance criteria at a later date.

Although the criteria are intended primarily for use in the solar demonstration program, it is also hoped that they can be used to develop provisions for model and local building codes as well as federal specifications.

Interim Performance Criteria for Solar Heating and Cooling Systems in Commercial Buildings, NBSIR 76-1187, may be purchased for $5 a copy from the National Technical Information Service, Springfield, Va. 22161.

ANTI-POLLUTION EFFORT TAKING EVER-LARGER SHARE OF U.S. GNP

The national anti-pollution effort is requiring an ever-increasing chunk of the gross national product.

Spending for pollution abatement and control by consumers, business and government in the United States totaled $27.2 billion in 1974, the latest year for which figures are available. This is up from $23 billion in 1973 and $18.9 billion in 1972. This accounted for 1.9 percent of GNP in 1974—compared with 1.8 percent in 1973 and 1.6 percent in 1972, according to Commerce's Bureau of Economic Analysis.

A substantial part of the 18 percent increase in antipollution expenditures in 1974 was probably due to price movements. Prices of all goods and services—as measured by the GNP implicit price deflator—rose 10 percent in 1974, and prices of goods and services used for pollution abatement probably rose even more rapidly, in part due to sharp fuel price increases.

About 94 percent of antipollution spending was for goods and services to reduce pollution emissions directly. The remaining 6 percent was for regulation, monitoring, research and development.

Amounts spent to combat air and water pollution were virtually equal in 1974 (about $11.5 billion each), and most of the remainder ($4.4 billion) was spent for treatment of solid waste. From 1972, the first year for which estimates were prepared, to 1974, the air component rose 66 percent, reflecting (1) the more than doubling of motor vehicle emission control expenditures and (2) increases in plant and equipment expenditures for air pollution abatement. The water component increased 32 percent and the solid waste component 26 percent in the same period.

About 90 percent of the $4.2 billion increase in 1974 antipollution spending is explained by:

- Higher fuel prices, which increased operating costs of motor vehicle emission controls $800 million, and increased spending by electric utilities $300 million (for fuels with lower sulfur content).
- An increase of $600 million in operating emission controls of motor vehicles (this excludes fuel price increases).
- An increase of $700 million in private business operating costs.
- An increase of $1.1 billion in spending for sewers and sewage treatment facilities.
- An increase of $300 million in business capital spending for pollution control and abatement.

Spending to reduce pollutant emissions in 1974 was $25.6 billion. Of that, business spent nearly 62 percent, or $15.8 billion: $7.3 billion for plant and equipment to reduce emissions and $8.5 billion for operating expenses. Federal, state, and local governments spent $6.5 billion, and consumers spent $3.3 billion.

CLEAN UP—*Pollution control has become a $27-billion-a-year business. It pays off when proper wastewater treatment systems prevent accidental spills like the one above. When an industrial wastewater lagoon gave way, the contents spilled into the river and was carried many miles downstream, killing thousands of fish.*

Federal funding of government pollution abatement accounted for 34 percent of the total, compared to 28 percent in 1973 and 19 percent in 1972. More than three-fourths of abatement expenditures by government in 1974 was for water treatment ($4.9 billion)—almost all was for construction of public sewer systems.

Government regulation and monitoring expenditures increased 22 percent to $598 million in 1974. Federal agencies spent 58 percent of this amount directly and funded another 15 percent—these proportions have remained virtually unchanged from those in 1972 and 1973. Of the total, 42 percent was for water, 31 percent for air, 4 percent for solid waste, and 23 percent for pesticides, noise and radiation.

Research and development expenditures increased 8 percent to $976 million in 1974. Private expenditures of $594 million for the development of technology to abate pollution were primarily (about 80 percent) for air. The major spenders were companies that manufacture transportation equipment. Government expenditures of $383 million were used to develop monitoring equipment and emission sampling techniques and to set emission standards.

Data on pollution abatement and control expenditures are updated and published annually in the *Survey of Current Business*, the monthly magazine of Commerce's Bureau of Economic Analysis. The Survey is available from most District offices of the Department of Commerce, or from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Guide Outlines Investment Along Ozark Waterways

"A new frontier for industrial growth" is presented in a brochure from the Ozarks Regional Commission, *Waterways Investment Guide*. The report covers five U.S. states, describing the interconnected 25,000-mile network of rivers and canals in Arkansas, Kansas, Louisiana, Missouri and Oklahoma.

The 50-page report emphasizes the importance of by-water shipment in the current and coming era of fuel crisis, and analyzes the five water systems with text, photographs, maps and tables.

Information on 26 ports is provided, including specifics on available services, equipment, shelter, rail and highway facilities. A directory lists hundreds of service organizations, such as banks, chambers of commerce, custom house brokers, export packing firms, consular offices, freight forwarders, railroad, steamship and truck lines, as well as four foreign trade zones.

The booklet is available without cost from the Arkansas Industrial Development Commission, State Capitol, Little Rock, Ark. 72201.

GOING UP—*Private residential building construction topped $59 billion in 1976, a 28 percent increase over 1975. Census Bureau figures show that U.S. construction costs have doubled in the last ten years, to $144.5 billion in 1976.*

U.S. Construction Costs Doubled In Last Ten Years

Caught up by inflation, U.S. construction costs have approximately doubled in 10 years, according to figures from Commerce's Census Bureau.

Census finds that the value of new construction put in place in 1976 was $144.5 billion compared with $132 billion in 1975, a 9.5 percent increase. However, the value of new construction in 1976 in 1967 constant dollars was $73 billion, 5 percent higher than in 1975.

During December 1976, the seasonally adjusted annual rate of new construction put in place was $151.6 billion, while a revised estimate for November was $150.5 billion. In terms of 1967 dollars, the December annual rate was $74.7 billion, the same as the November estimate, and less than half the rate in current dollars.

The value of new private construction put in place in 1976 was $108 billion, about 16 percent higher than in 1975. In 1967 constant dollars new private construction was $55.1 billion in 1976, 10 percent higher than the $50.2 billion reported for 1975.

In December 1976, new private construction was put in place at a seasonally adjusted annual rate of $117.7 billion, one percent higher than the revised estimate of $116.4 billion for November.

Private residential building construction was $59.4 billion in 1976, 28 percent higher than the 1975 estimate of $46.5 billion. The annual rate in December was $68.4 billion, 3 percent above the revised November rate of $66.4 billion.

Private nonresidential building construction was $25.7 billion in 1976, 3 percent below the $26.4 billion put in place in 1975. The December annual rate was $25.8 billion, about the same as the revised November rate of $25.7 billion.

The annual rate for private industrial construction in December was $6.5 billion compared with $7.6 billion in December 1975, a decline of more than 14 percent. However, the annual rate for private office construction in December 1975 was $5.2 billion compared with $4.7 billion in December, 1975, an increase of more than 10 percent. The annual rate for other commercial construction showed little change from the previous year.

New public construction in 1976 totaled $36.4 billion, 7 percent less than in 1975. In 1967 constant dollars new public construction put in place dropped from $19.5 billion in 1975 to $17.9 billion in 1976, a decline of 8 percent, and less than half the value in current dollars.

In December 1976, the estimated seasonally adjusted annual rate of public construction put in place was $33.9 billion, about the same as the revised November estimate of $34.1 billion.

Study Looks At Causes Of Deaths In Fires

In an effort to reduce loss of life in fires, two Commerce agencies are sponsoring a program to investigate the medical and physical causes of fire casualties. The National Fire Prevention and Control Administration and the National Bureau of Standards' Center for Fire Research are the cosponsors. The program is conducted by the Johns Hopkins University Applied Physics Laboratory (APL) in cooperation with the State of Maryland Medical Examiner's Office.

The information is being gathered in numerous ways. First, the scene of the fire is investigated to determine the ignition source, first items ignited, spread factors and materials involved. The resulting information provides some insight into the toxic atmosphere during the fire. Extensive pathological, physiological and toxicological post-mortem analyses are performed on each fatality to fix the medical cause of death and possibly explain failure to escape.

Thus far, APL's principal conclusion is that carbon monoxide, either by itself or in combination with circumstances which render the victim vulnerable, e.g. high blood alcohol or heart disease, is responsible for most deaths that occur during the fire or within six hours thereafter. The role of other gaseous toxic substances, such as hydrogen cyanide, is far less important.

Nearly all the fatalities studied by APL, except the cases caused by indirect fatal injuries or stoppage of breathing (oxygen was cut off before enough carbon monoxide was inhaled to cause death), have had extensive soot deposits in the trachea and bronchia. The substantial quantities of hydrochloric acid carried into the lungs via soot may be responsible for the severe lung injuries that are not uncommon in survivors or delayed fatalities. They may also in some way contribute to the death of fire victims who survive for less than six hours.

Several remedial measures suggest themselves, according to the APL study. Detectors and alarms responding to smoke would unquestionably save many lives if properly positioned. Sprinklers together with detectors would reduce economic as well as human losses. Public education, directed particularly against the fire hazards of smoking, would help reduce the human causes of fires.

The treatment of fire victims would be helped if the medical consequences of the fires were better understood. Appropriate countermeasures to carbon monoxide, hydrogen cyanide, hydrochloric acid and soots, and a concern for interactions of toxic gases with a poor circulatory system should reduce fatalities.

Business Executives Seek To Spur Venture Capital Flow To Small Businesses

A panel of independent business executives has called for a series of innovative steps by the Federal Government to stimulate the flow of equity and venture capital to small businesses.

The recommendations were contained in a report to the U.S. Small Business Administration by a 15-member panel chaired by William Casey, former President of the Export-Import Bank, Under Secretary of State and Chairman of the Securities and Exchange Commission.

Casey said, "If these recommendations are favorably acted upon by the Administration and the Congress, critically needed new venture and equity capital will flow to the small business sector of our economy. This, in turn, will produce substantial increases in jobs, tax revenues and productivity."

In summary, the major task force recommendations are:

Tax Laws and Regulations

Increase the corporate surtax exemption from the present level of $50,000 up to $100,000;

Allow great flexibility in depreciating the first $200,000 of assets;

Permit investors in qualified small businesses to defer the tax on capital gains if the proceeds of the sale of a profitable small business investment are reinvested within a specified time in other qualified small businesses;

Increase the deduction against ordinary income of capital losses in a small business investment made under Section 1244 of the Internal Revenue Code from $25,000 in annual deduction to $50,000, and increase the limit on an offering from $500,000 to $1 million and on issuer size from $1 million to $2 million in equity capital;

Permit underwriters of the securities of smaller businesses to deduct a loss reserve against the risks inherent in the underwriting and carrying of such securities, and

Revise methods by which revenue impact of tax changes are estimated to reflect revenue gains from the use of tax savings by the taxpayer and the stimulus to capital formation and economic activity.

Small Business Administration (SBA)

Greater availability of long-term financing is more important to growing small businesses than financing cost. To lay a basis for this, SBA should require and encourage commercial banks to assume a larger portion of the risk in SBA loans and change its guarantee fee from a one-time fee of 1 percent of the amount of the guaranteed debt to an annual fee which more nearly reflects the value and cost of SBA's guarantee;

Provide that some of the guaranteed borrowing available to Small Business Investment Corporations (SBICs) take the form of debt, with the interest partially subsidized if the funds are used to make equity investments;

Permit SBICs to deduct from ordinary income loss reserves on both equity and debt portions of their portfolios;

Immediately make a substantial increase in the size standards for SBIC investments and also provide for an annual revision of these standards in line with broadly accepted price indicators, and

Substantially expand SBA's Secondary Market Program by creation of a "Certificate" system for the sale of SBA-guaranteed loans.

Institutional Investors/Employee Retirement Income Security Act (ERISA)

Amend ERISA to declare a policy that pension funds may invest in a broad spectrum of American companies within the "prudent man" rule and that it applies to the total portfolio rather than any individual investment. Also create a "basket" of 5 percent of the assets of any plan within which investment managers can invest according to standards of prudence and liquidity appropriate to higher risk small business investments;

The development of professionally-managed pools of capital should be encouraged, so that pension fund managers, otherwise constrained by time or expertise, may participate in the investment in new ventures and in growing smaller companies. These special funds should be specifically exempted from the provisions of the Investment Company Act of 1940, and

In cooperation with the SEC and other regulatory bodies, exempt the illiquid securities of small companies from "mark-to market" or "fair value" accounting treatment.

New Edition Available Of Franchise Directory

The *1977 Directory of Franchising Organizations* has just been issued to aid those contemplating investments in franchises in making wise decisions. The publication, the 18th annual edition, provides current data on 600 leading franchise firms in the consumer product and service industry fields.

The directory contains a checklist for the potential franchise purchaser that makes such suggestions as checking the company's credit rating, checking case histories, investigating the territory offered, finding out whether promotional help will be furnished, whether the franchise is renewable or can be sold, and many more.

The directory is available, at $2.95 per copy, from Pilot Books, 347 Fifth Ave., New York 10016.

Franchisors' Sales Increase 16 Percent In 1976; Growth In Establishments Slows

Sales by franchise establishments made strong gains last year, but their numbers grew at a more restrained pace than in recent years.

U.S. franchisors estimate a sales rise for 1976 of 16 percent. Commerce's Bureau of Domestic Commerce estimates that total sales of goods and services through the franchise system reached $212 billion, compared to $182 billion for 1975.

A recent Commerce Department survey anticipates a further increase in franchise sales to about $239 billion in 1977. It shows a total of 446,000 franchise establishments in the United States during 1976, up 3 percent from 1975. This small growth is attributed to the closing of nearly 3,500 gasoline service stations in 1975. For 1977, the total franchised outlets are projected at almost 464,000, a 4 percent gain.

Nearly 3.5 million persons are employed in franchise operations.

Prepared by the Office of Business Research and Analysis, the report contains data on 18 business categories, including 83 tables on sales, number of establishments, employment, minority ownership, international locations, size distribution by number of establishments, average sales volume per franchise operation, changes in ownership, and total investment and start-up cash required.

The survey shows that franchising opportunities for minority groups continue to broaden in all of the 15 non-traditional franchising categories appearing in the study. In 1975, a total of 346 franchisors reported they had more than 3,400 minority-owned franchise outlets. Three categories account for about 63 percent of total minority-owned franchises—automobile products and services, fast food restaurants and retailing (food and other than convenience stores.)

Data from the survey also indicate the growing importance of U.S. franchising in world markets. In 1975, franchisors reported almost 11,000 outlets in foreign countries. About 4,300 of all foreign-based outlets, or 39 percent, were located in Canada.

Franchising in the Economy, 1975-1976 is available at $1.50 per copy from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Calendar Of Business Events

Mar. 18—Atlanta—Federal Procurement Conference, Royal Coach Inn. Sponsor: U.S. Rep. Larry McDonald. Contact: Don Vice, Office of Rep. McDonald, P.O. Box 747, Marietta, Ga. 30061 (404-422-4480).

Mar. 20-22—Dallas—1977 National Automated Clearing House Assn. Conference, Fairmont Hotel. Contact: Ms. Keith Kiley, American Bankers Assn., 1120 Connecticut Ave. NW., Washington, D.C. 20036 (202-467-5787).

Mar. 20-23—Washington—Toxicity & the Products of Combustion Symposium, Shoreham-Americana Hotel. Contact: Fire Retardant Chemicals Assn., 1001 Connecticut Ave. NW., Suite 800, Washington, D.C. 20036 (202-452-1531).

Mar. 20-24—Dallas—18th Annual Dallas Toy Show, World Trade Ctr. Contact: Director of Admissions, P.O. Box 58527, World Trade Ctr., Dallas, Tex. 75258.

Mar. 20-24—Boston—Boston Gift Show, Sheraton Boston Hotel. Contact: Irene Weissman, Little Bros. Shows, Inc., 261 Madison Ave., New York 10016 (212-986-8000).

Mar. 20-25—New Orleans—173rd American Chemical Society National Meeting, Hyatt Regency Hotel. Contact: ACS, 1155-16th St. NW., Washington, D.C. 20036 (202-872-4450).

Mar. 21-22—Houston—Fundamentals of Mgt. & Organizational Behavior For Women, Houston Oaks Hotel. Sponsor: Wharton School. Contact: Heidi Kaplan, New York Mgt. Ctr., 360 Lexington Ave., N.Y. 10017 (212-953-7262).

Mar. 21-23—Chicago—American National Metric Council Third Annual Conference & Exposition, McCormick Inn. Contact: AMC, 1625 Mass. Ave. NW., Washington, D.C. 20036 (202-232-4545).

Mar. 21-24—Houston—Loss Prevention Symposium On Hazardous Materials. Sponsor: American Institute of Chemical Engineers. Contact: Norman Brock, Air Products & Chemicals, Inc., P.O. Box 538, Allentown, Pa. 18105.

Mar. 21-Apr. 1—Chicago—Capital Expenditure Economics I, Institute of Gas Technology. Contact: IGT, 3424 S. State St., Chicago, Ill. 60616 (312-567-3650).

Mar. 22 — Chicago — Product Liability Seminar, Holiday Inn O'Hare/Kennedy. Contact: Georgene Savickas, National Paint & Coatings Assn., 1500 Rhode Island Ave. NW., Washington, D.C. 20005 (202-462-6272).

Mar. 22—Miami Springs, Fla.—Business-Consumer Relations, Miami Spgs. Villas. Contact: Lewis Nixon, Commerce Miami District Office.

Mar. 23-25—New York—Port of N.Y. Navigation & Communications Exposition, Seamen's Church Institute. Contact: Maritime Assn. of the Port of N.Y., 80 Broad St., New York 10004 (212-425-5704).

Mar. 23-26—Dallas—Financial Control & Simplified Accounting in the Construction Industry, conducted by Jack Miller. Contact: Madeline Graeter, Group Communications, 6101 Southwest Freeway, Suite 401, Houston, Tex. 77057 (713-664-8818).

Mar. 24-25—Oakland, Calif.—Women in the Workplace. Contact: Greta Raymond, Stanford Research Institute, 333 Ravens Woods Ave., Menlo Park, Calif. 94025.

Mar. 24-25 — Washington — Financial Statement Analysis, Georgetown University. Contact: Betsy Girton, Continuing Management Education, SSCE, Georgetown U., 1901 N. Moore St., Rosslyn, Va. 22209 (703-525-6300).

Mar. 24-25—New York—Foreign Investment in the U.S. Workshop, St. Moritz Hotel. Contact: Practising Law Institute, 810-7th Ave., New York 10019 (212-765-5700).

Mar. 26—Nashville—Quality & Productivity Seminar, Hilton Airport Inn. Contact: American Apparel Mfrs. Assn., 1611 N. Kent St., Suite 800, Arlington, Va. 22209 (703-524-1864).

Mar. 28-29—Louisville—Industrial Energy Conservation Equipment Trade Show, Holiday Inn So. Convention Ctr. Contact: Michael McGill, Louisville Gas & Electric Co. (502-566-4489).

Mar. 28-30—Chicago—Packaging Machinery & Equipment Seminar, Sheraton Plaza Hotel. Contact: N.Y. Mgt. Ctr., see address above.

Mar. 28-Apr. 1—Alexandria, Va.—Comprehensive Assets Security Course, Holiday Inn. Contact: American Society for Industrial Security, 2000 K St. NW., Suite 651, Washington, D.C. 20006 (202-331-7887).

Mar. 29—Paramus, N.J.—Air Pollution Control Seminar. Contact: Wm. Smedley, American Institute of Plant Engineers, Box 8045, Rt. 8, Browns Mills, N.J. 08015.

Mar. 29-31—Philadelphia—High Speed Tableting—Industrial & Pharmaceutical Powder Pressing, Philadelphia Sheraton Hotel. Contact: Society of Manufacturing Engineers, P.O. Box 930, Dearborn, Mich. 48128 (313-271-1500 ext. 311).

Mar. 29-31—Gaithersburg, Md.—Int'l Specialists Symposium on Neutron Standards & Applications, National Bureau of Standards. Contact: Dr. Chas. Bowman or Dr. Allan Carlson, RAD P B119, NBS, Washington, D.C. 20234 (301-921-2234).

Mar. 29-Apr. 1—Silver Spring, Md.—Microcomputer & Microprocessor Short Course, Sheraton Hotel. Contact: Integrated Computer Systems, Inc., 4445 Overland Ave., Culver City, Calif. 90230 (213-559-9265).

Mar. 30-31—Atlanta—Design, Construction & Operation of Modern Paint Mfg. Plants, Atlanta Hilton. Contact: Nat'l Paint & Coatings Assn., see address above.

Mar. 30-31 — Washington — Government Affairs Seminar—Clear Air Act, Hyatt Regency Hotel. Contact: Air Pollution Control Assn., P.O. Box 2861, Pittsburgh, Pa. 15230 (412-621-1090).

Travel Information Office Opens in Mexico City

Mexican motorists planning to visit the United States now have a free U.S. travel information service, Info Viajes USA, according to Commerce's United States Travel Service (USTS). It will be within reach of more than 12.5 million people residing in the metropolitan Mexico City area.

The Commerce agency has announced that the phone-in, write-in, walk-in service will offer Mexican travelers information about activities, routes and vacation opportunities in the United States. It is a cooperative project of USTS, the Texas Tourist Development Agency, Arizona Office of Tourism, New Mexico State Department of Development, Louisiana Tourist Development Commission, and the Buena Park Convention and Visitors Bureau, which represents five tourist bureaus in Southern California.

Info Viajes USA is similar to the InfoRoad USA program initiated by USTS in Canada in 1975, which USTS officials say has been of great value to the participating tourist organizations and areas.

U.S.'76 Trade By Area: Increases Shared Widely

IMPORTS ROSE FROM ALL PARTS OF WORLD LAST YEAR; SALES TO LDCS GREW MODESTLY, ELSEWHERE BUOYANTLY

Spurred by the domestic economic recovery, U.S. imports from all areas of the world advanced in 1976. The sharp rise resulted from the switch from inventory depletion to accumulation, from the expansion in consumer spending, and only to a limited extent from the modest increases in import prices. After leveling in value the year before, imports from the developing countries as a group rose by $13.4 billion. Greater purchases of oil, other industrial supplies, and consumer goods led the growth. Imports from the developed countries also rose sharply, by $11 billion, largely because of increases of over $4 billion each in purchases from Canada and Japan.

Commerce's Office of International Trade Analysis has prepared this area review of 1976 U.S. trade, and the overall summary carried in the Feb. 14 issue.

Reflecting a marked slowdown in shipments to the oil-exporting LDCs and a downturn in deliveries to the other LDCs, U.S. exports to the developing countries as a group grew quite modestly. Shipments to the major industrial countries, however, were considerably more buoyant than in 1975 as industrial production revived with their emergence from the deep recession. Export prices continued to moderate following a more marked slowdown in 1975. Declines in the prices of U.S. agricultural exports—reflecting record crops at home and better harvests abroad—and chemicals were counterbalanced by rather sharp increases in the unit values for finished manufactures.

Imports from Canada, Japan soar

Imports from Canada rose by over one-fifth in value, continuing the rapid growth of more than a decade which was only briefly interrupted in 1975. A strong rise in domestic auto demand led to a huge increase in receipts of Canadian-produced passenger cars, and also in automotive parts. Growing industrial production here generated a substantial advance in imports of most types of industrial supplies in contrast to the previous year when lower output curtailed these purchases. The more than half billion dollar rise in natural gas receipts was attributable to another boost in the prices set by Canada's National Energy Board. In contrast, crude petroleum arrivals sharply declined as Canada continued to reduce the volume of its oil exports to the United States in order to conserve supplies for domestic use. Imports of forest products—lumber, newsprint, and wood pulp—nonferrous metals, iron ore, and fertilizers increased significantly. As sales in the United States rebounded from their depressed levels of 1974 and 1975, arrivals of Canadian-built trucks also soared in quantity and value.

Almost two-fifths of the $2.4 billion growth in exports to Canada resulted from larger shipments of automotive equipment. Despite the fact that Canadian sales of U.S.-style cars declined in 1976, new passenger cars accounted for $245 million of the huge increase. The larger share, however, covered parts for incorporation into autos assembled in Canada by subsidiaries of American firms for the booming U.S. market. Machinery sales were buoyed by greater exports of computers, agricultural machinery, and construction and mining equipment. After leveling in 1975, chemical exports also picked up strongly. Meat shipments doubled in value, mostly from larger sales of pork. Deliveries of aircraft and parts, in contrast, were halved.

Sharply reversing the 1975 decline, U.S. imports from Japan rose 38 percent. The rapid increase in purchases of Japanese products resulted mainly from greater arrivals of consumer goods. Stimulated by the stepup in domestic consumer expenditures, imports of cars, citizen band radios, TVs, tape recorders, photographic equipment, and clothing increased at a rapid rate. Imports of motorcycles, however, continued to decline for a second year after generally trending upward since the late 1960s. Imports of the popular small Japanese pickup trucks nearly doubled. Though quantities rose by a sizable 36 percent, the value of steel imports was only 2 percent higher than the previous record in 1975 as prices declined.

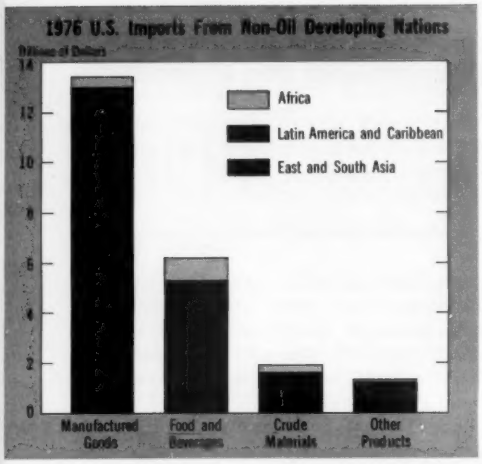
The rebound in U.S. exports to Japan, which was restrained by the erratic economic recovery in that country, failed to bring sales to their peak 1974 level. The moderate 6 percent increase resulted mostly from larger deliveries of agricultural commodities, notably tobacco, hides, meat, and cotton. Far exceeding the worldwide expansion in U.S. exports of chemicals, sales of those products to Japan rose strongly. Shipments of softwood logs exceeded their previous peak

U.S. TRADE BY AREA 1975-76

(In millions of dollars)

Area	1975	1976
EXPORTS		
Developed countries, total	64,780	70,602
Canada	21,744	24,109
European Economic Community	22,865	25,406
Other Western Europe	7,080	6,995
Japan	9,563	10,144
Australia, New Zealand, and Republic of South Africa	3,528	3,948
Developing countries, total	39,215	40,372
OPEC and other oil-exporting countries	12,567	14,656
Other developing countries	26,648	25,716
Other Western Hemisphere	17,099	16,973
Near East	8,946	10,047
East and South Asia	10,093	10,214
Developing Africa	2,964	3,048
Developing Oceania	113	90
Communist areas in Europe and Asia	3,092	3,638
Unidentified countries[1]	505	385
IMPORTS		
Developed countries, total	55,966	66,991
Canada	21,729	26,238
European Economic Community	16,611	17,848
Other Western Europe	4,126	4,936
Japan	11,268	15,504
Australia, New Zealand, and Republic of South Africa	2,232	2,465
Developing countries, total	39,252	52,621
OPEC and other oil-exporting countries	21,417	29,158
Other developing countries	17,835	23,463
Other Western Hemisphere	16,044	17,117
Near East	5,431	9,103
East and South Asia	10,224	14,648
Developing Africa	7,436	11,622
Developing Oceania	117	131
Communist areas in Europe and Asia	887	1,059
Unidentified countries	11	6

[1]Transshipments of certain grains and oilseeds through Canada are shown as exports to unidentified countries.
Note: Export data include military grant-aid shipments.



value in 1973, as Japanese construction activity began to rise. Primarily because of greater deliveries of computers, shipments of machinery were moderately higher. Exports of commercial aircraft declined for the second year to a value about half that in 1974, while sales of coal dropped as steel production in Japan recovered only slowly.

Despite the faltering pace of the European Community's economic upturn, sales to that group of countries rose by 11 percent as shipments to each member accelerated from the 1975 pace. Exports to Belgium-Luxembourg and France picked up vigorously, while those to the Netherlands and Germany grew more moderately. To the more economically hard-pressed United Kingdom and Italy, the expansion in shipments was quite modest. Greater sales to the EC of nonfarm products, especially organic chemicals, plastics, and computers, accounted for well over half of the increased value. After flattening in 1975, agricultural exports rose by 15 percent. Sales of corn, soybeans, and animal feed advanced nearly 20 percent in the wake of the unusually dry North European summer of 1975, which reduced grain crops. Wheat and tobacco sales turned down.

Last year saw a partial recovery in imports from the EC countries which had declined by 13 percent in 1975. The 7 percent rate of growth, though, was substantially slower than that from either Japan or Canada. Upturns in arrivals from the United Kingdom and France, and to a lesser extent, from Germany and Italy, accounted for the bulk of last year's rise. Imports of whisky and a wide range of consumer goods, particularly gem diamonds, but also including automotive parts, clothing, and electric home appliances, advanced in value. Nuclear fuel materials, mainly from the United Kingdom and France, tripled. Some of this material was for processing and reexport, but part was for domestic consumption since the use of imported fuel was legalized beginning in 1977. Receipts of industrial chemicals and nonferrous metals also expanded sharply, while purchases of steel dropped for the second year from their exceptional 1974 peak value.

Imports from the 23 developing countries which are major sources of oil advanced by more than one-third to $29.2 billion. The total was more than double that of U.S. purchases from these nations before OPEC oil prices skyrocketed. Petroleum accounted for all but $1.5 billion of the purchases from these countries. Close to $1 billion was accounted for by agricultural products—mainly coffee and crude rubber. U.S. demand for foreign petroleum was strengthened last year by the expanding economy, continuing declines in domestic crude oil production, an average price rise of 5.5 percent, and increased purchases in anticipation of a price increase on Jan. 1, 1977. Most of the expansion reflected greater U.S. imports from Saudi Arabia, Nigeria, Libya, Algeria, Indonesia, and the United Arab Emirates. Imports from Western Hemisphere LDCs declined.

As demand for imported goods in some of these countries was dampened by reduced oil revenues in the previous year and problems of absorption of the huge purchases of 1974-75, the growth in U.S. exports to them continued to slow. The 17 percent increase last year compared with a 54 percent rise in 1975 and a 79 percent advance in 1974. Exports to Iran and Algeria in fact declined in 1976. Sales to Saudi Arabia, on the other hand, soared for the third consecutive year, and after Iran, that country became the major OPEC destination for U.S. goods.

Exports of farm products to the oil-exporting LDCs fell slightly in value, as declines in cereals and vegetable oils were only partly offset by advances in meat, tobacco, and feed shipments. Steel exports were reduced by $500 million after advancing dramatically in each of the past three years. Moreover, exports of manufactured fertilizers dropped $150 million. Sales of machinery continued to grow, though at a much slower rate than in 1975. A $1.1 billion advance was recorded, nevertheless, in machinery exports to these countries, notably in deliveries of heating and cooling machines, mechanical handling equipment, and power machinery. Sales of aircraft and parts more than doubled as deliveries rose to Iran, Iraq, Bahrain, and Venezuela.

After advancing moderately in the previous year, exports to the non-oil exporting LDCs declined in 1976. Many of these countries, faced with formidable external debt problems, large balance of payments deficits, and reduced earnings in 1975, restricted their foreign purchases. In addition, better grain harvests resulting in larger world supplies and lower prices helped to reduce the value of agricultural exports. The largest part of the $930 million decline in U.S. exports to these countries occurred in agricultural products. Smaller values for wheat and other grains, partly offset by increases in cotton and tobacco shipments, resulted in a net $600 million drop in farm exports. A huge drop of over $400 million occurred in shipments of fertilizer, in part because of much lower prices. Steel shipments were lower by $270 million. Deliveries of tractors and all types of transportation equipment were also reduced. Increased sales were recorded, however, for numerous semi- and finished manufactures, including semiconductor devices, mainly for processing and reexport to the United States.

Imports from these LDCs recovered from their 6 percent decline in 1975 and soared by 32 percent last year. They were particularly buoyant from the African countries and from East and South Asia. From Africa, agricultural imports jumped by 50 percent as a result of increased prices for coffee. The quantities, however, were only 7 percent greater than in 1975. Copper imports, which had dropped to only $23 million the previous year, climbed to $157 million. Further, oil imports from Zaire and Congo (Brazzaville), which have not in the past been considered major suppliers to the U.S., rose from $14 million to $138 million.

Greater imports of a wide variety of consumer goods accounted for a large share of the $3.5 billion growth in purchases from the East and South Asian LDCs. Imports of clothing, footwear, electronic equipment, watches, and toys advanced strongly. In addition, certain semimanufactures, particularly cotton and other textiles, steel, and plywood, expanded, as agricultural imports leveled.

The relatively modest 15 percent rise in purchases from non-oil LDCs in the Western Hemisphere resulted mainly from higher values for agricultural imports and comparatively modest increases in other commodities. The quantity of coffee imports declined by 8 percent, but the value was about 60 percent greater than in 1975. Sugar arrivals, in contrast, rose in volume by 18 percent, but the cost declined by 40 percent.

Sales to the communist countries rose in 1976, though the growth was less dramatic than in the preceding year when grain sales soared to the USSR as a result of a disastrous harvest. The expansion again last year was mainly attributable to greater exports to the USSR. Sales to the People's Republic of China reached their lowest level since the resumption of trade in 1972. Although there was a further decline in the value of imports from the USSR, purchases increased from the other East European countries and China.

SMALL BUSINESS GIVES VIEWS ON EXPORTING—*Lack of consistency in governmental support of U.S. exporters and U.S. firms' fear of risk-taking were cited as obstacles to greater export growth by small U.S. companies at a recent Washington conference attended by executives from a dozen manufacturing companies, several architectural/engineering and export management firms, and five trade associations. At head of table, from left, are Eugene Lang, REFAC Technology Development Corp., New York; Sidney Harman, the Commerce Department's Under Secretary-designate; Merritt E. Freeman, of the host Bureau of International Commerce, and management consultant James S. Cassano, Philadelphia.*

Multilateral Trade Negotiations

This article is another in a series of progress reports on the multilateral trade negotiations, prepared by the Commerce Department Office of Int'l Trade Policy.

GENEVA

The **MTN Framework Group,** in its first substantive meeting Feb. 21-22, afforded most delegations their first opportunity to air views on the five items on the Group's agenda: 1) the legal relationship of special and differential treatment for developing countries to the General Agreement on Tariffs and Trade (GATT), particularly the Most-Favored-Nation clause; 2) trade measures taken for balance-of-payments or economic development purposes; 3) consultation, surveillance and dispute settlement under the GATT; 4) the principle of reciprocity in future trade negotiations and the gradual assumption of fuller obligations by the developing countries; and 5) export restrictions.

The meeting consisted largely of initial statements by delegations with little in-depth discussion. The United States and others circulated papers giving preliminary views on some of these issues. Those papers and the initial statements currently are being analyzed by the participating governments. The next meeting is scheduled for May.

The **NTM Subgroup on Customs Matters** met briefly Feb. 21 to consider customs valuation issues and a United States proposal for a notification/consultation procedure to deal with customs issues other than customs valuation.

On the issue of customs valuation, a number of delegations noted the importance of an internationally acceptable set of rules. The United States reiterated its willingness to engage in discussion leading to the possible development of international rules, but emphasized that any changes in U.S. law would require appropriate reciprocity.

The U.S. proposal for notification and consultation on other customs issues was adopted without discussion. The new procedure sets up a mechanism whereby countries can deal with specific customs problems in areas such as customs procedures, import documentation, and consular formalities and fees.

The **MTN Safeguards Group** met Feb. 14-15 to discuss further the proposals for establishment of better international rules governing use of import restraints in response to injurious import competition. The focus of the discussion was on proposals by the United States and certain developing countries. The Group agreed on a future work program for more detailed discussion of the issues along the lines suggested by the United States. The next meeting is scheduled for May.

The **GATT Antidumping Committee** met Feb. 23-25, reviewing and revising an inventory of problems and issues that signatories to the GATT Antidumping Code have encountered in dealing with each other's antidumping systems. Another meeting in June will consider what further action may be desirable.

Kendall, Lesher To Speak At Cleveland Conference

Dr. Richard Lesher, President of the U.S. Chamber of Commerce, and Donald M. Kendall, Chairman of PepsiCo, Inc., will be among the speakers at the 32nd annual Cleveland World Trade Conference March 24 at the Cleveland Plaza.

The meeting has a theme of "Planning for the 80's: World Trade Opportunities and Issues." The keynote speaker is Lloyd N. Hand, an official of TRW, Inc. Conference sponsor is the Cleveland World Trade Association, with five other trade and governmental groups assisting in arrangements.

U.S. SUPPLIERS CAN TAP MAJOR WATER RESOURCE MARKET IN NEAR EAST

Development of water resources for agriculture, industry and municipal services is being given top attention by Saudi Arabia, the United Arab Emirates and Iraq—a priority confirmed by the lively sales report turned in by 12 U.S. companies after a recent trade mission visit to those countries.

Mission members brought back orders last month representing more than $12 million in sales. They forecast an extraordinary $78 million in additional orders over the next year, to back up their observation that these markets offer unlimited opportunities for U.S. suppliers.

A warm welcome by senior government officials and top level businessmen was followed at each stop by continuous discussions covering direct sales, licensing, joint ventures and technical assistance, reported mission director Albert J. Planagan of the Commerce Department Action Group for the Near East (CAGNE).

The participants were especially busy interviewing local agents and representatives who can keep them abreast of the multiplying sales opportunities. Several dozen leads were initiated during the two-week mission. The use of local agents is particularly important, Planagan explained, in order to maintain a continuing presence in the face of aggressive foreign competition. Many Near East countries also require foreign firms to have local agents in order to do business.

Highlights of the market assessments for the individual countries follow:

Saudi Arabian opportunities

An ambitious development program is making Saudi Arabia a highly attractive market for U.S. firms. Financed by increasing oil revenues, the rapid expansion in industrialization, urbanization and agriculture has strained existing water supplies and distribution systems.

Saudi Ministers and their deputies, the Governor of Mecca, and the Mayor of Jidda, described specific multibillion dollar projects for the construction of new water distribution systems, desalination plants, sewerage treatment facilities, dams, well drilling, and irrigation. The Ministry of Agriculture took several mission members on an extensive tour of agricultural projects in the Jidda area, and the Saline Water Conversion Corporation briefed the group on the expansion of desalination facilities in the western region.

UAE priorities

The efforts of the United Arab Emirates' Government to expand its basic infrastructure were evident everywhere. In the northernmost Emirate, Ras al Khaimah, the mission met with members of the local Chamber of Commerce. Ras al Khaimah is the UAE's principal agricultural area, and is undertaking measures to improve production through irrigation, mechanization, and the greater use of fertilizers.

The Dubai and Abu Dhabi Chambers of Commerce hosted receptions for the mission, and in Abu Dhabi meetings were held with senior officials of the Department of Water and Electricity, the Abu Dhabi Municipality, and with senior advisors for the Al Ain water distribution and sewerage projects. Frank Crowley, President of Natgun Corp., was specifically asked for his technical assistance regarding problems Abu Dhabi has experienced with its concrete water tanks.

Officials from Oman's Ministry of Agriculture traveled to Abu Dhabi to brief the mission on their government's plans to develop its water resources. This meeting represented the first contact between a U.S. trade mission and the Government of Oman.

WATER IS VITAL HERE—*The general manager of the Saudi Steel Manufacturing Co. briefs the U.S. mission on his industrial and residential water requirements.*

Growing prospects in Iraq

The mission was the first U.S. Government trade promotion event of its kind recognized by the Iraq Government since 1967. Extensive meetings between the mission members and Iraq government officials and private businessmen were highlighted by one at the Ministry of Agriculture during which the mission was officially welcomed on behalf of Iraq's president.

Iraqi officials stressed the importance that country is attaching to the development of its agriculture. A mission visit to the Greater Musayyab irrigation project, south of Baghdad, revealed the country's desire to expand its dairy herds, increase fruit production, and capitalize on the winter vegetable market. The Ministry of Agriculture also plans to provide potable water to all inhabitants, as well as undertake sewerage and drainage projects in all major cities. Officials in the Ministry of Irrigation indicated that Iraq plans to proceed with a number of dam projects, including one in the billion dollar range in which U.S. participation would be welcome.

Most mission members reported that while no immediate sales agreements were reached, the Iraqi market appears to offer growing prospects for irrigation and water supply equipment. Several plan return trips in the near future. Iraqi officials noted that despite the inactivity of American firms in Iraq during the past decade, those firms that make an effort to develop business ties will find Iraq very receptive to U.S. technology and equipment.

Mission members not already named were Richard Freeman, Auriema International Group Inc., New York; William Hughes, Beckman Instruments, Fullerton, Calif.; John Olson, Black & Veatch, Kansas City; John Newman, Butler Mfg., Kansas City; Peter Hardy, Irrigation and Industrial Development Corp., New York; Robert Hawthorne, Ford Steel Co., Maryland Heights, Mo.; Floyd Meller, Ionics Inc., Watertown, Mass.; John Haldeman, Johns-Manville International Corp., Denver; Thomas Willets, Mechanical Equipment Co. Inc., New Orleans; Bruce Warburton, Schramm, Inc., West Chester, Pa.; and Lazaros Lazaridis, Thermo Electron Corp., Waltham, Mass.

AT OFFSHORE INTERNATIONAL—*Exxon's Craig Atkins (left) shows his firm's exhibit to Norwegian Minister for Industry Bjartmar Gjerde, other visitors.*

CONTINUING NORTH SEA ACTIVITY SPURS INTEREST IN OFFSHORE EXHIBITION

The broad range of technology available from the United States, and U.S. preeminence in pioneering new techniques of oil and gas extraction in deeper waters, helped attract to the U.S. pavilion virtually all visitors attending the recent Offshore International exhibition in Birmingham, England. The display included such equipment and materials as submersible work vehicles, electrical fixtures, power tools, well-head assembly, high-pressure valves, and epoxy resins.

The 21 U.S. exhibitors reported $1.7 million worth of sales during the event, and expect 12-month orders to reach some $15 million. A total of 19 representation agreements were under negotiation on the closing day; two representatives had been appointed.

Carl A. Roehl, of the Matcote Co., Houston, new to the U.K. market, said that his firm can start the year with sales amounting to more than a quarter of a million dollars as a result of participation. Ricardo Paz, of Beta Engine Systems, also a new-to-market firm, found the exhibition an excellent vehicle for penetrating the offshore market sector. Paz said: "Potential sales as a result of this exhibition should be about $100,000 to $150,000 for my company."

A centerpiece at the U.S. pavilion was the model of a subsea production system being pioneered by Exxon in the Gulf of Mexico. The model, on public exhibition for the first time, drew wide attention. Such a system, which does away with platforms, has particular relevance to North Sea operations because it is designed for deeper waters, where future North Sea exploration is bound to take place.

Activity in the North Sea, though affected by outside forces, seems set to continue briskly through the early 1980s, according to the U.S. Embassy. U.S. prices are in line with those of competitors, the technological level remains high, and companies are likely to pay for quality. However, under guidelines not fully specified, the United Kingdom's Offshore Supplies Office urges end users to purchase equipment manufactured in the United Kingdom if it is equivalent to imported equipment in terms of quality, compatibility, and delivery date. These guidelines, plus an undoubted improvement in the quality and sophistication of locally made products, have resulted in an increase in market penetration by local manufacturers.

U.S. Farm Equipment Is Magnet For Buyers In Guadalajara, Mexico

The spotlight was on U.S. agricultural equipment recently as the Mexico City U.S. Trade Center staged an off-site exhibition in Guadalajara—the first full-scale Commerce Department trade show ever held in that city.

Virtually all exhibited machinery and equipment was sold to local farmers and businessmen, contingent on their obtaining import permits from the Government of Mexico. Floor sales reached $200,000; projected 12-month sales are expected to result in $10 million worth of new business. The initial seminar program drew so many applicants that five extra seminars had to be quickly organized for the overflow.

The event, Agricola 77, featured all sizes and shapes of equipment of 36 new-to-market exhibitors and of another 30 U.S. firms represented in Mexico. The Jalisco Livestock Association donated space for the show, and cooperated in arranging the diverse booth requirements—accommodating equipment from a floating pump to a 180-hp. tractor.

U.S. FARM EQUIPMENT IN MEXICO—*At Trade Center show, Guadalajara, visitors inspect floating pump. Front row, from left: Mathias J. Ortwein, U.S. Con. Gen., Guadalajara; Hugh Barragan Hermosillo, Pres., Jalisco Livestock Ass'n; Alberto Orozco Romero, Gov., Jalisco State; Bruce Malkin, U.S. official; and an exhibitor.*

JAPAN'S CONSUMER GOODS DISTRIBUTION SYSTEM CAN WORK FOR U.S. EXPORTERS

When potential American exporters consider selling to Japanese consumers they face a formidable image: a distribution system composed of thousands of small neighborhood retailers who are accessible only through several layers of middlemen, each adding on an outrageous margin.

This picture could be more myth than reality. Actually, the number of middlemen in Japan depends upon the product and also the individual company. Many of the most powerful consumer goods companies in Japan have built over a period of time very short and efficient distribution channels. But distinctions must be made.

A Japanese company, strong in one area, which introduces a product in another area cannot automatically rely on its established distribution channels for the new product. An example is Ajinomoto, which has the major market share for monosodium glutamate seasoning; although this product can be found in almost every food retail shop in Japan, it is difficult to find Ajinomoto's mayonnaise, which it introduced a few years ago, in any but the largest supermarkets and department stores.

The number of middlemen is definitely affected by the product line. Thus, 57.6 percent of all fresh fish sold in Japan passes through three wholesalers before it reaches the retailer; but at the other end of the spectrum, 89.5 percent of all shoes and 87.4 percent of all furniture sold pass through only one wholesaler before reaching the retail outlet. Most explanations of Japanese distribution for foreign businessmen tend to focus on those products which pass through many middlemen and ignore most of those which pass through only one wholesaler or even none at all.

Another scare tactic often used to slow any penetration of Japanese consumer goods markets from abroad is to emphasize the large numbers of retail outlets that, in the common warning, "must be reached if you are going to sell your products in this market."

This creates a misconception, because the importance of the neighborhood retail outlet clearly depends upon the type of product being sold. For example, most Japanese make major clothing purchases (suits, overcoats, etc.) at department stores and specialty shops, thereby making the neighborhood store unimportant for this type of product. In contrast, there are 120,000 stores in Japan which sell beer and alcoholic beverages, and in 1970 82.6 percent of all liquor was sold in stores which handled less than $8,000 worth of liquor and beer a year, making the small neighborhood store the primary outlet for these products.

Even in the area of food products, the growth of the Japanese "superstores" (large supermarkets which also sell consumer durables) is causing a change in Japanese buying patterns. These outlets are being increasingly used by customers for purchases of processed food, although the neighborhood store is still the primary outlet for fresh meats, fruits and vegetables. Ajinomoto, mentioned above, found to its surprise that as much as 40 percent of all mayonnaise was sold through superstores, so they concentrated their marketing efforts on establishing distribution channels to these stores, which buy directly from Ajinomoto. Only recently has Ajinomoto begun to establish distribution to neighborhood outlets.

Stereotyped beliefs about the mysteries of marketing in Japan have hampered American exports to the world's second largest consumer economy. This is the view of U.S. Commercial Officers in Japan, who have prepared the accompanying article on the Japanese distribution system and reviewed its points with the American Chamber of Commerce in Japan. A more detailed report by them, covering competitive practices and needed product adaptation and promotion, is available to interested U.S. companies. "Marketing Consumer Products In Japan, DIB-76-06-205" can be obtained from the National Technical Information Service, U.S. Dept. of Commerce, Springfield, Va. 22161, at $3.50 per copy. Specific marketing information is also available from Arthur Miyakawa, Japan Country Specialist, Room 1015, U.S. Dept. of Commerce, Washington, D.C. 20230.

Even after the marketer has determined the relative importance of each type of outlet, allowances must still be made to determine the importance of those outlets for the sale of foreign products. Western-style furniture comparable to that which American and European suppliers might wish to sell in Japan is sold primarily in department stores and in some large specialty stores. Japanese do buy furniture primarily at specialty stores, including neighborhood stores, and secondarily at department stores. However, most of these neighborhood specialty stores sell traditional Japanese furniture or cheaply and poorly constructed Western-style furniture.

To give another example, an American exporter of stationery supplies might be told that there are 100,000 stationery outlets in Japan. Actually, most of these stores sell Japanese family name seals, rice paper and calligraphy brushes. The Western-style products they sell are everyday items such as cheap ballpoint pens and writing tablets (with the lines drawn vertically for Japanese writing.) Imported stationery products are sold in department stores and quality specialty stores.

In summary, an analysis of the distribution systems for many of the products which Americans are trying to sell in Japan will reveal that the importance of the neighborhood outlet and the existence of the many middlemen have been greatly exaggerated. The traditional distribution system of 20 years ago has been breaking down due to the rise of the superstores, the formation and growth of chain stores, the consolidation of many small wholesalers due to increased labor costs, and the efforts of Japanese manufacturers to establish shorter and more efficient distribution routes. In short, the convenient excuse of blaming the Japanese distribution system for all problems and failures is unacceptable.

Japanese businessmen often respond to U.S. criticisms of their distribution system by pointing out that it has taken the Japanese companies years to develop their distribution channels and to earn the loyalty of the wholesalers and retailers below them in the chain. These businessmen like to emphasize the aspects of feudal loyalty which exist in Japanese business, stating that business relations in Japan are not formed on the basis of money alone. They maintain that American businessmen who come rushing in with offers of a better deal will not succeed because Japanese wholesalers and retailers demand more than a "good deal" in their business relations. This is true.

In almost all phases of Japanese business activity, the question of whom one is dealing with is just as important, if not more important, than what is being discussed. For example, in deciding whether to become the agent for an American company, a Japanese company is just as interested in the American company's background and its representatives as it is in the products the U.S. company is offering them.

Japanese wholesalers and smaller retailers do possess a great amount of loyalty to the companies which supply them. The products which the wholesaler receives from the manufacturer are his lifeblood. The primary wholesaler also

knows that he is sustained by the loyalty of the people below him, whether they be secondary wholesalers or retailers. He knows that they will continue to buy from him and will probably not abandon him for a better deal.

This is the way Japanese businessmen like to counter criticism of their distribution system. They conveniently ignore, however, all the financial incentives they use to maintain the system. For example, the manufacturer offers his products to the wholesaler on consignment, and the wholesaler consigns products to the retailers. Financing is provided for lower levels, for example, for store remodeling or a new delivery truck. A rebate system exists throughout. The manufacturer tells the retailer what wholesaler he can buy from and even sets the wholesaler's price to the retailer. To insure price maintenance at every level, the manufacturer holds a certain amount of money from the wholesalers and retailers "in trust" for a period of a few months after delivery on consignment is made.

This picture emerges from charges made by the Japanese Fair Trade Commission in cases which it brought against three major Japanese dairy product manufacturers in the summer of 1974, and which are still being heard in court. It is one of the most significant attacks on the Japanese distribution system since the Taisho pharmaceutical case of 1955, in which the court agreed with the FTC that a manufacturer could not use its economic might to force a wholesaler or retailer not to purchase or sell products made by a competitor.

Every American company with a serious interest in the Japanese market should establish a marketing plan. It is recommended this be done by a market research or consultancy firm in Japan, not by the Japanese agent, although both the Japanese agent and the U.S. company should be consulted throughout its preparation.

This marketing plan should establish the location and size of the potential market for the U.S. product. This means determining where comparable products are being sold and in what numbers; for example, what percentage is sold in department stores, specialty stores, chain stores, superstores, self-service stores, neighborhood stores, etc.

Market location also means that the characteristics of the potential customer should be defined, for the potential customer's situation in Japan is often different or much more limited than in the U.S. What are the characteristics of this customer in terms of age, sex, educational level, occupation, hobbies and interests, etc., and where does he or she tend to shop? In addition, what is the geographical location of the market? Is it primarily confined to urban areas, or should the suburbs and outlying rural areas also be included?

The marketing plan should also indicate how comparable goods are distributed in Japan. Do they go straight to major retailers or must they pass through a wholesaler? Who are the potential wholesalers and retailers who will handle the products?

The marketing plan should also give a long-term timetable for establishing distribution to the potential market. Obviously, establishing distribution channels in Japan takes time and most agents do not have the capability to move goods quickly through the entire potential market. Therefore, this timetable should spell out goals for reaching the market, both in terms of sales outlets and geographical areas. For example, the market plan could call for establishing distribution to Tokyo department stores in the first year; Osaka area department stores, Tokyo suburban department stores, and Tokyo major specialty stores in the second year; Tokyo and Osaka wholesalers, and other major city department stores in the third year.

The American businessmen will probably find such a study to be a worthwhile investment, for it forces both the exporter and the Japanese agent to set forth their plans for promoting the product. It is particularly useful to the U.S. company in order to insure that the Japanese agent is marketing the goods in a way which meets the objectives of the U.S. company.

The typical Japanese agent, eying costs, will sell imported goods in the way most profitable to him. It is important, therefore, for the U.S. company to offer financial incentives to the Japanese agent in order to get him to carry out the marketing plan. The first one, obviously, is the export price. Many Japanese agents complain that they must buy from the U.S. company at the same price U.S. wholesalers and retailers do. There is no credit given to the foreign agent for the fact that this price includes U.S. domestic advertising and administrative and sales costs which do not benefit the Japanese agent. The Japanese agent must incur these costs again in Japan, so it is important that the U.S.

JAPAN'S CUSTOMERS FOR U.S. CONSUMER GOODS— *Changing patterns in shopping habits and in personal tastes among these purchasers are altering the traditional marketing channels in Japan. Interior photo at right is of a glassware display at an "American Fair" promotion held last year at the Mitsukoshi Department Store in Tokyo.*

company reduce its prices proportionately in fairness to local conditions.

The American company should also consider giving financial assistance to its Japanese agent to cover part of the costs of advertising and personnel and sales expenses incurred in promoting the U.S. products in Japan. This is especially important if the Japanese agent has to extend the distribution channels beyond those which presently exist. It is important in any case for the U.S. company to give the Japanese agent as many incentives as possible to market the products in accordance with the marketing plan which has been drawn up. A year-end bonus for carrying out the plan is often deemed appropriate.

Consumer markets in Japan await the American exporter, and some of them are fascinatingly unusual. Who would believe, for example, that the Japanese custom of flying kites at New Year's could mean major sales for a Houston company?

Late in 1975 the chill winds off Siberia were boosting the U.S.-made Gayla kite—scientifically designed of plastic, looking like a monstrous bird—to heights that astonished Japanese children and adults alike. The Gayla's importer was a small-venture business, AG Co., which had searched the world for kites to replace those made by kite craftsmen, now dwindling in numbers in Japan.

Having decided that the Gayla design was the best available anywhere, the AG firm had flown to Houston and worked out a three-year sales plan with Gayla Industries. A seven-man project team carried out the plan, which is now in its third year. According to AG's figures, the Gayla kite has swept about 80 percent of the Japanese market and has stirred so much new enthusiasm for kite flying that it has helped to double that market overall.

The Japanese marketing firm took three sales routes. It used well-known department stores to help build the product's image. It chose regular toy shops as its mass distribution channel. Finally, it tried stationery shops and sporting goods stores as new distribution channels. Though a small firm, it took quite a gamble in investing a total of $800,000 in publicizing the U.S. kites. It tried new approaches; for example, holding a kite-flying contest on a beach in the summer off-season to gain the media spotlight.

This successful sales campaign was kicked off at a U.S. Government-operated trade center, the American Merchandise Display in Osaka. Last summer the American Consulate General in Osaka sent congratulations on the occasion of the sale of the five millionth Gayla kite in Japan—both to the U.S. producer and to its aggressive, imaginative Japanese agent.

WIDE RANGE OF GOODS CAN SELL IN NETHERLANDS

The Netherlands offers excellent opportunities for a broad range of U.S. exports, according to Joseph A. Harary, Commercial Officer at the U.S. Embassy in The Hague. U.S. sales will expand significantly in future years, he predicts, especially where American companies make the necessary effort to develop this potentially lucrative business.

Harary backs up this optimistic outlook by citing some market factors that should prove advantageous to American exporters. Besides the excellent reputation generally enjoyed by American products, they have the additional advantage of being generally price-competitive in the Netherlands, where labor costs are among the highest in the industrial world. This is encouraging many Dutch manufacturing firms to acquire labor-saving equipment, a sector in which the United States is strong. An added advantage to U.S. exports is the lower rate of the dollar in relation to the guilder.

Spotlight on three areas

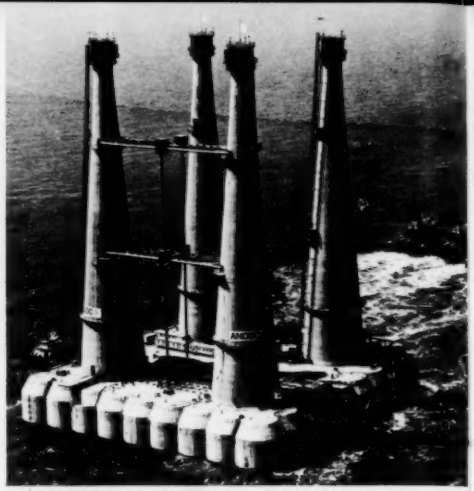
American manufacturers of oil and gas drilling equipment have a dominant position in the Netherlands; the U.S. share in this market is estimated at more than 65 percent. Demand for these products has grown phenomenally in recent years and is expected to continue to increase at a substantial rate. U.S. exports jumped from some $11 million in 1973 to about $55 million in 1975. The Netherlands does not manufacture oil and gas drilling equipment, and is receptive to the advanced U.S. technology in this area.

More than two-thirds of Dutch consumption of health care equipment, estimated at some $250 million in 1975, is supplied by imports. The United States, with 16 percent of the import market, is second only to West Germany. Demand for these products is expected to continue the rising trend of recent years.

According to the trade, sales of American automotive products in the Netherlands are considerably larger than U.S. export and Dutch import statistics indicate, and may account for 10 percent of annual Dutch imports estimated at some $600 million. Many U.S. manufacturers supply the Dutch market through importers in neighboring Common Market countries. While the automotive market will continue to expand, there is a tendency to keep vehicles in use for longer periods. As a result, demand for parts and equipment will increase. Harary believes this sector has been somewhat neglected by American companies and that greater effort could generate additional profitable business.

Partly because of substantial exports of natural gas, the Netherlands had a surplus in its current account balance amounting to $1.8 billion in 1975 and more than $2 billion in 1976; the surplus is expected to total about $2.5 billion in 1977. With such regular and sizable annual surpluses of foreign exchange, the Netherlands is an attractive growth market for U.S. exports. It is no surprise then that the Dutch are sophisticated, active and efficient international traders, receptive to additional products, not only for marketing in the Netherlands, but also in other parts of the world, particularly neighboring countries. The Netherlands handles a tremendous amount of foreign goods placed in bond for forwarding to other countries, often after reprocessing and repackaging. Harary estimates that more than 20 percent of U.S. exports to the Netherlands is reexported to other countries.

The Dutch market for imports ranges from raw materials and agricultural commodities to the most technologically sophisticated equipment. Besides imports for its own consumption, estimated at some $35 billion in 1976, it has proved to be an excellent distribution point for the EEC market with its over 200 million people within a 200-mile radius from Rotterdam, the world's largest port. In view of the current size and potential for growth of the Netherlands as an import market, competition from other industrialized countries, particularly West Germany, France and the United Kingdom, is very strong. That is why American companies must remember that prompt delivery and after-sales service, as needed, are important elements if a transaction is to succeed and business to expand.



FLOATING MARKET — *Drilling equipment and a variety of other products are needed for massive oil production and storage platforms like this one built in Holland for Shell at a price of $152 million. This 250,000-ton base will have annual production capacity of 10 million tons of oil as well as hotel accommodations for 100 and a helicopter pad. It is shown being positioned in the North Sea between the Shetland Isles and Norway.*

U.K. GOAL OF EXPORT-LED UPTURN PROVES ELUSIVE; FOCUS ON CAPITAL GOODS

The severe recession of 1975 is over, but Britain has failed to achieve a sustained economic recovery. Industrial production has moved erratically since last spring while fixed and inventory investment have yet to register anticipated gains. Inflation, after dipping below a 13 percent annual rate in July, has inched upward since, reflecting the impact on imported raw material costs of sterling's slide on foreign exchanges. With stagnating output and low levels of investment, the rate of unemployment has maintained its upward crawl.

Government strategy remains keyed to voluntary wage restraints and implementation of substantial cuts in public expenditure in 1977. The object is creation of the economic confidence necessary for the restoration of competitiveness to British industry by means of investment and export-led growth, according to the U.S. Embassy in London.

The rapid decline in sterling since April has brought with it a serious threat to the success of the government's economic strategy. It owed much to a conviction in foreign exchange markets that, in spite of strong words, the government had resorted to further borrowing alone rather than taking the measures needed to curb inflation and move the balance of payments toward equilibrium. Domestic interest rates rose to record levels and it became clear that international borrowing could not long substitute for decisive government action.

In the wake of these developments, the outlook for 1977 is less happy than it was six months ago. Consumer spending will be held down by a combination of wage restraint and high unemployment. Exports may be slowed by a less than buoyant expansion in world trade. Financial resources for both working capital and inventory investment will be affected by ceilings on domestic credit expansion agreed to by the government as a condition for Britain's $3.9 billion drawing from the International Monetary Fund. In addition, government spending will also be reduced, adding to the weakness in aggregate demand. However, this weakness should help the current account. Non-oil imports will not rise sharply, while the North Sea may provide up to half of U.K. oil needs in 1977.

Despite what promises to be a difficult year for the British economy, American exporters should be able to maintain their positions in this market. In specific areas, they may very well be able to expand their market shares although this will probably require more aggressive sales and pricing tactics than needed in the past. Among areas which show promise of responding well to American products are:

Petroleum and Offshore Equipment: The government's release of further drilling areas has encouraged renewed interest in offshore drilling and development. There is increasing interest in new technology related to sub-surface activity which cuts costs of offshore oil extraction. In the closely related process control section, investment rates may ease because of excess capacity in some areas. However, one leading end-user, the petrochemical sector, is planning further substantial investment, while others will tend to invest more as and when the economy recovers.

Chemicals: A substantial percentage of U.K. chemical production is by U.S. subsidiaries, and U.S. specialty chemicals are well established in the U.K. market. U.S. suppliers should perceive enhanced sales opportunities if economic recovery triggers further investment in the industry.

Equipment for the Foundry Industry: Newly allocated government funds are beginning to attract additional private investment into a very rundown industry. U.S. technology and processes are leaders in this area. While several foundries are state-owned, there are a number in the private sector which are likely to benefit from the greater availability of investment resources.

Consumer Goods: The penetration of the U.K. market by U.S. consumer goods in the last four or five years has been phenomenal. The U.K. market is large, and countries vying for a share are not as competitive in many consumer goods categories as is the United States. There is no reason why U.S. consumer goods should not maintain their current share of the U.K. market and there is a possibility of taking an increased percentage. Particularly dynamic areas are furniture, hand tools, fabrics and appliances.

Air/Water Treatment Equipment: Despite a generally depressed industrial sector, anti-pollution systems will continue to enjoy an impressive share of expenditure on plant. Oil and gas production and distribution, and the expected satellite industries to process their by-products, will have environmental consequences which neither government nor the public can ignore. Dispersal of both industry and population from the older, major cities is straining water and sewage facilities, while agricultural pollution is a rapidly increasing problem.

Computers: Despite attempts to establish a "European Computer Industry", the market for U.S. products remains very healthy. Mini and micro-computers and peripherals continue to lead the way. U.K.-based U.S. subsidiaries, and agents for U.S. manufacturers, remain at the forefront of the U.K. computer market.

Automatic Business Equipment: U.K. manufacturers of automated business equipment are still finding difficulty in competing with overseas companies selling to Britain despite their obvious advantages in the home market. Demand for advanced machines continues to be good and the outlook for U.S. products is encouraging.

Agricultural Equipment: Farm machinery and accessories' production is at record levels. Tractors and combines are of a size and horsepower unknown in Europe a decade ago and offer a whole range of new power-farming techniques. British farmers are proving receptive to American big-farm methods and equipment. There will be a booth displaying catalogs of American products at the Royal Agricultural Show in July.

General Aviation: This market is showing weak signs of recovery. Radical changes brought about by its depressed state of the past two years plus legislation enacted during this period have caused the industry to look inward. As a result, while American products and aircraft are still dominant in the entire range, it is possible that different marketing and selling techniques will have to be developed. Meanwhile, the demand for air taxis is still growing, due largely to the offshore oil industry and Britain's EEC connections.

Laboratory, Scientific and Engineering Instruments: The U.K. market has been shrinking steadily in recent years, but U.S. products have moved against the tide by increasing their share in important areas. Since this sector is, in gener-

TEXAS TO NORTH SEA—*Pair of giant tilt-rigs capable of drilling 48-inch diameter hole are test-assembled after fabrication in Skytop-Brewster's Victoria, Tex., plant. Built for Santa Fe International to drill foundation holes for deep-sea oil platforms, these units are now in use in the North Sea.*

al, highly competitive and price elastic, currency fluctuations are a major factor in sales potential.

The British Government is making intense efforts to maintain the country's traditional liberal attitude towards foreign trade. It also welcomes foreign investment. There is a wide spectrum of local, regional and national bodies to facilitate the establishment of new industries. Substantial financial inducements are available to investors willing to establish in areas characterized by high unemployment and depressed industry. Information on these inducements and facilities can be obtained from British diplomatic and consular personnel stationed in the United States.

In sum, despite a continuing weakness in aggregate demand, certain areas of the economy offer good prospects for American sales. Capitalizing on these opportunities will require careful attention to the peculiarities of this market. U.S. goods remain competitive in both price and quality and extra attention will pay off not only in current sales but in future opportunities as the government's industrial policy begins to be reflected in expanded investment and sales activity.

Indonesia's Key To Recovery: Sufficient Income From Oil To Fund Development, Debt

Indonesia has made significant progress toward recovery from the 1975 financial crisis of Pertamina, the state oil company, reports the U.S. Embassy in Jakarta. International reserves, nearly depleted as an immediate consequence of Pertamina's problems, now stand at near record levels on the strength of a good export performance and a return to an overall balance of payments surplus in 1976. Finances were placed under tighter controls as the government restructured the unanticipated Pertamina-contracted debt burden and at the same time tried to reduce inflationary pressures. Fairly tight monetary and fiscal policies are expected to continue in 1977.

The outlook appears generally favorable. Demand for Indonesia's principal exports is holding firm but much will depend on continued strength in the economies of principal trading partners, notably Japan and the United States. The private business sector, pinched by the tight credit policy, looks toward recovery in the second half of 1977. Beyond 1977, the government's ability to service its large debt and still maintain momentum in its development program depends largely on whether Indonesia can maintain current oil production levels; to do so will require resumption soon of exploration activities suspended following the renegotiation of oil contracts in 1976.

U.S. exports to Indonesia in 1976 were 28 percent ahead of the previous year, reaching a billion dollars for the first time. Once again, electric and non-electric machinery was the most important category, followed by rice and other grains, commercial aircraft and parts, chemicals and motor vehicles. U.S. imports, 35 percent higher than in 1975, totaled more than $3 billion; crude petroleum comprised more than 80 percent. Indonesia now ranks third behind Saudi Arabia and Nigeria as a supplier of crude oil to the United States.

The strong growth in U.S. exports to Indonesia during the past few years may be difficult to sustain in months ahead. The pipeline of products imported under Eximbank loans is starting to thin, and the government, because of the debt burden incurred in the Pertamina crisis, plans to cut back somewhat its reliance on commercial and export credits. U.S. investment in Indonesia, always a helpful stimulant to U.S. exports, has declined, and the tight credit policy has slowed domestic business activity. Finally, import restrictions designed to protect domestic industries are being promulgated.

U.S. suppliers, however, should not be discouraged by these uncertain and negative factors. The Indonesian market is potentially large and medium-term prospects for growth and development are favorable. Government purchases for a number of large projects will continue to keep import demand at fairly high levels. U.S. companies which penetrate this market now or which make the effort to consolidate and expand their existing positions in Indonesia have a reasonable chance for success.

Product categories which have the highest potential for increased U.S. export sales appear to be: wood processing equipment; construction, mining and materials handling equipment; and electric power generating equipment ranging all the way from turnkey hydroelectric plants through diesel generator sets and including transformers, switchgear, meters and transmission systems.

A good local agent and aftersales servicing and spare parts supply are, of course, key factors in a successful sales program in Indonesia. Also important are competitive financing arrangements as an effective counter to the traditional Indonesian preference for low priced (but poor quality) equipment.

The government encourages foreign investment, particularly in those areas where capital, technical expertise and advanced management skills are not available internally. Foreign companies operate through joint ventures with Indonesian partners. The government guarantees the investor's right to repatriate capital and, in some instances, provides tax incentives.

U.S. investment has been important in the development of the Indonesian economy, although little has occurred recently. Investment has declined for a variety of reasons, including the economic recession in the United States, uncertainties regarding future requirements for Indonesian participation in joint ventures, the difficulties of doing business in Indonesia, and because of a counter-reaction to

AGRIBUSINESS COUNCIL IN INDONESIA—*Indonesian President Suharto greeting Kenneth Mueller, President of the Agribusiness Council, at the Presidential Palace in Jakarta, during visit to initiate Council's agribusiness investment mission last year.*

forced renegotiation of contracts with the oil companies.

In view of the decline in foreign investment, policy level spokesmen, including President Suharto in his Independence Day speech Aug. 17, have taken pains to stress Indonesia's need and welcome for foreign investment. Thus far nothing tangible has resulted but some large investment projects are reportedly at an advanced stage of negotiation.

In October the embassy revised its comprehensive major projects list, which shows over $21 billion of potential undertakings. The list, in addition to describing the project by name and estimated cost, also identifies the funding source, projected agreement/contract date, status and name and address for key contacts. Interested firms may obtain it by requesting report DIB 76-11-023 from the National Technical Information Service, Department of Commerce, P.O. Box 1553, Springfield, Va. 22151. The cost is $3.50.

Most active projects

Of the near 100 projects in the major projects list the following appear to be among the most active, and offer opportunities now for additional American involvement. The World Bank and Asian Development Bank have a more than $1 billion road improvement and development program. Current plans call for expansion of electric power capacity from the present level of 1,700 megawatts to over 3,000 mw by 1980 through development of additional electric power centers costing $925 million. The long-planned development of Batam Island near Singapore as a multipurpose transshipment and processing center is being implemented under a reorganized program; active involvement of the private sector in this plan, which will cost $300 million, is invited.

The new Jakarta International Airport at Tanggerang (estimated cost $450 million) has been reactivated. The master plan has long been done but land has been recently purchased. The government is still seeking concessional financing but interested firms are invited to bid as main contractors on a 20-year management contract basis.

Additionally, Dow Chemical and Indonesia signed in November a memorandum of agreement to negotiate the details of a $750 million ethylene plant in North Sumatra. Natural gas from the Arun field, one of the world's largest, will supply the feedstock. Royal Dutch Shell has reached agreement and commenced site investigation for a potential $1.2 billion investment in the coal industry in South Sumatra. Pacific NIKKEL, a $900 million nickel investment involving U.S. Steel and others, is at an advanced state of study.

Cameroon Is Good Location For U.S. Investment, Sales

A sound, diversified economy, substantial hydroelectric power resources, and good fiscal management have enabled Cameroon to withstand petroleum price increases and the international recession while maintaining a good credit rating with international lending institutions and commercial banks, according to the U.S. Embassy in Yaounde. This African nation, located to the southeast of Nigeria, offers excellent prospects as a location for American investment and market for goods and services.

On July 1, Cameroon began a $2.9 billion Fourth Five-Year Development Plan (1976-81), emphasizing development of agriculture and agro-industry, natural resources (bauxite, iron, oil and timber), infrastructure, import substitution and resource processing industries. The plan continues the government's policies of "planned liberalism," encouragement of foreign private investment, and basically conservative fiscal management.

Cameroon's economy is based on agriculture. Coffee, cocoa and cocoa products account for approximately 55 percent of export earnings. In addition, there is a highly diversified agricultural economy of timber, peanuts, cotton, palm oil, vegetable produce, bananas, tea and rubber. Basically self-sufficient in food production, Cameroon exports foodstuffs to adjacent states and Europe. Agro-industrial development's high priority under the new plan, and Cameroon's varied topography and climatic conditions offer opportunities for a wide variety of agricultural products.

A tsetse fly eradication program now under way will substantially improve Cameroon's beef production for domestic consumption and export.

Variety of resources

Timber reserves are estimated at approximately $10 billion, and Cameroon has one of the world's largest reserves of exotic hardwoods. Oil production is due to begin in 1978 and Cameroon should be self-sufficient by the early 1980s. Construction of a small refinery is due to begin in 1977. Mineral resource exploitation, mainly bauxite and iron, has been delayed pending development of sufficient infrastructure, but offers excellent possibilities.

Infrastructure development remains the key to Cameroon's growth. Massive investments in upgrading the railroad, expanding port facilities, improving roads and airport facilities and constructing new dams for power and irrigation are included in the new plan.

The government desires foreign investment and technology. The leadership is relatively young, well-educated and western in political/economic philosophy. The economy is diversified with good fiscal management. The investment code is quite liberal and the government honors its commitments. Cameroon's membership in the four-country Customs Union of Central African States (UDEAC)—potentially five with Chad's proposed return—offers a growing market area. Recent creation of a Central African Development Fund to be used by the five states should result in more rational development planning and improved investment and marketing opportunities.

Agro-business, timber, mining, processing and light industry, and assembly plants offer the main opportunities at present for U.S. investment and sales. Increasing agricultural production for domestic consumption and export has highest priority. All of Cameroon's neighboring states are food importers and Europe and North America offer opportunities for sale of fresh or processed fruits. Timing of timber and mineral resource exploitation is contingent upon infrastructure development, but both offer substantial opportunities for engineering services and equipment sales.

Foreign firms have privileges

Development of these resources, in effect, must be in partnership with Cameroonian companies, but foreign firms willing to work with and train Cameroonians will enjoy a wide range of privileges designed to make such partnerships attractive and mutually profitable.

While lack of infrastructure imposes limitations on resource exploitation at the moment, there are sufficient opportunities to justify investment at this time which will open the door to future participation in major projects. High quality iron deposits, extensive timber resources, indications of manganese, uranium and gold, and hydroelectric power resources, all located in one part of the country, presently inaccessible but with no natural barriers to the sea, indicate high potential for future development. Processing of local agricultural, animal, fishing and forestry products should be a prime growth sector. Light industry and assembly plants could take advantage of Cameroon's hydroelectric power potential, manpower availability, membership in the Customs Union, privileged access to European markets, and good communications and transport links to Europe, the United States and the rest of Africa.

Cameroon badly needs to create opportunities for its steadily expanding population of school graduates and dropouts looking for jobs, and more labor-intensive industries producing goods for the African market (for which European imports are usually vastly overpriced) would be highly competitive. With the beginning

of oil production with in-country refinery capability, several projects for production of petrochemical products are also included in the plan. In general, Cameroon offers one of the best locations in Africa for American investment and sales.

Potential U.S. suppliers and investors are urged to contact the American Embassy in Yaounde, the Department of Commerce's Bureau of International Commerce, or the Economic and Commercial Affairs Counselor, Augustine Njawe, at the Embassy of Cameroon in Washington.

France Considers Legislation Allowing Control Of Mergers

The Government of France has introduced in the National Assembly a bill "relative to the control of economic concentration, the repression of illicit agreements and of abuses of dominant position." The bill was referred to the Finance, General Economic and Plan Committee for study and is expected to be adopted by the Assembly early this year with little modification.

The French Government favors mergers on grounds of technical advantages, international competitiveness and social benefits. However, fears that mergers may occasionally depart from these positive objectives led it to propose this bill, which provides for selective and flexible control of mergers and similar business arrangements.

Intended mergers would be subject to scrutiny when they would lead to control of more than 40 percent of a horizontal market or 25 percent of a vertical market. The French Ministry of Economy and Finance would be empowered to authorize, forbid or modify the proposed merger or association. Denial or modification could occur when the economic and social benefits to be derived from the merger do not outweigh the restraint on competition drawbacks.

According to a Paris-based American lawyer, there are certain points of similarity between the bill and the State of New York's antitrust law.

How the law will be implemented is, of course, an open question. Of particular interest will be how rigidly the provisions will be applied relative to proposed mergers between French and foreign companies, i.e., to what extent will "social and economic benefits" outweigh "restraints on competition" when a non-French firm is a party.

Copies of the proposed law may be obtained from the National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, Va. 22151; Telephone: 703-321-8500. Request report #DIB 77-03-014 and enclose a check for $3.50 payable to NTIS.

Calendar For World Traders

March 16—Seattle—Documentation seminar, Chamber of Commerce. Reservations: 206-447-7251.

March 17—Chattanooga — World Trade Council dinner meeting, Read House.

March 17—St. Louis—Seminar on Being Competitive in Pricing Your Product Overseas, Mercantile Tower Board Room. Speakers: Joseph G. Roldan, Roldan International; Ernest I. Stokes, Western Lithoplate and Supply Co. Information: Commerce District Office, Paul Bergman, 314-425-3303.

March 17-18—New York—World Trade Institute seminars: Fundamentals of Foreign Exchange, and Using International Tax Treaties to Your Advantage.

March 22—Orange, Calif.—First of a series of seminars on Introduction to World Trade, sponsored by Orange County Chamber of Commerce, at City Center, Community Hall. Information: 714-634-2900.

March 22-23—Denver—National Council for U.S.-China Trade conference on mining and construction equipment opportunities in PRC. Commerce speaker: William Clarke, Bureau of East-West Trade.

March 23—Phoenix—American Graduate School of International Management seminar on PRC. William Clarke will speak.

March 23—Indianapolis — Seminar on How to Exhibit Overseas—Brazil and Venezuela. James Blow of Commerce's Office of International Marketing will speak.

March 23-May 6—Cleveland — World Trade Education Center of Cleveland State University offers series of seminars on international trade, including: marketing, financing and taxation, and legal aspects. Information: 216-687-3733.

March 24—Clayton, Mo.—International Credit Finance Panel: Tom Casteel, Monsanto Co.; Jim Eulberg, Ralston-Purina; and Donald C. Temme, First National Bank. Place: Cheshire Inn. Information: Commerce District Office, Paul Bergman, 314-425-3303.

March 29—New York—Middle East Institute meeting. Peter Hale, Director, Commerce Action Group for the Near East, will discuss Implications of the Boycott.

March 30—White Plains, N.Y.—Sell in Venezuela seminar. Tom Brewer of Commerce's Office of International Marketing will speak.

March 30—Chicago—Middle East Institute meeting. Jack Hearn of CAGNE will speak.

March 30—Seattle—Transportation seminar, Chamber of Commerce. Reservations: 206-447-7251.

INTERNATIONAL BUSINESS REPORTS

Foreign Trade Market Place, edited by George J. Schultz. Published by Gale Research Co. 800 pp. $48.

This handbook is a subject-classified directory to enterprises involved in foreign commerce, and a functional guide offering practical assistance in developing a foreign trade strategy. The editor has served as a Congressional aide and an official of the Agency for International Development and the U.S. Department of Commerce.

Part One, "Developing a Foreign Trade Strategy," contains seven chapters offering practical guidance in such areas as: Selling to Foreign Markets; Financing Exports and Imports; Standards and Procedures in Conducting Trade; and Special Markets.

Part Two contains 35 directory-style chapters grouped in five major categories: Commercial Activities—Export-Import; Governmental and Organizational Activities; Media, Promotion, and Information Activities; Procedures; and Transportation, Trade Zones, and Communications. Nearly 5,000 companies, consultants, commercial organizations, associations, and government agencies are listed in these wide-ranging directories. Some of these lists have never before been published, having been obtained from the data banks of governmental and trade associations.

Write: Gale Research Co. Book Tower, Detroit, Mich. 48226.

International Business. Bimonthly publication of the World Trade Clubs of America. Yearly subscription: $15 North America, $25 overseas.

New magazine designed to assist importers, exporters and others involved in world trade. Includes articles written by world leaders from government and industry; articles showing how importers and exporters can save operating costs; trade leads from around the world; and marketing information.

Write: International Business, 14842 First Ave. South, Seattle, Wash. 98148.

Worldwide Business Opportunities

International trade specialists in the Department of Commerce and Foreign Service Officers in the U.S. Embassies and Consulates around the world are continually developing specific commercial opportunities through which American companies can find buyers, agents, partners or investors abroad. One of the major means for communicating these opportunities promptly and accurately to the U.S. business community is through the columns of this magazine.

The section that follows presents details about upcoming trade exhibits and trade missions, licensing and joint venture proposals, opportunities to sell to foreign enterprises, visiting buyers, and details on major construction and expansion projects.

U.S. Promotions Abroad

For more facts on these and other U.S. exhibitions write: Director, Office of International Marketing, Rm. 4015, U.S. Department of Commerce, Washington, D.C. 20230. For trade missions: Rm. 6051, U.S. Department of Commerce, Washington, D.C. 20230.

Outdoor, Leisure and Recreation Equipment Exhibition and Seminar. U.S. Trade Center, Sydney. May 2-6. The combination of greater leisure time and new levels of affluence has created a surging interest in outdoor recreation in an already sports-minded continent. Dramatic increases in consumption, up 60 percent in the past two years, have pushed annual retail sales of this equipment over the $146 million mark. U.S. suppliers will find a wide range of products with high sales potential. Lars Lofas, 202-377-3646.

Food Processing and Packaging Equipment Catalog Exhibit. Panama, Costa Rica, El Salvador. May 4-18. Larger integrated food processing operations in Central America have become commercially feasible as a result of establishment of the Central American Common Market (CACM), among Guatemala, Honduras, Costa Rica, Nicaragua and El Salvador, and the emergence in these countries and in Panama of an increasingly prosperous middle class which is generating demand for a broad variety of foods. Since the U.S. already accounts for nearly three-quarters of the area's imports of food processing and packaging equipment, U.S. manufacturers are in excellent position to capitalize on the growing potential of this market. Catalog Exhibit Section, 202-377-3973.

Plastics Production Equipment and Technology Technical Sales Seminar. Poland, Czechoslovakia, Romania. May 5-19. Plastics production in Poland has been increasing rapidly. Poland's overall output of plastics increased from 257,000 metric tons in 1971 to 433,000 in 1975. In the Five-Year Plan (1976-80), investment funds have been earmarked for expanding plastics production facilities. The petrochemical industry holds a leading position among growth industries in Czechoslovakia and will continue to receive high priority during the 1976-80 Five-Year Plan period. Plastics output rose from 245,000 metric tons in 1970 to 428,000 in 1975. The current plan period projects that plastics output will more than double to 940,000 metric tons by 1980. Romania's chemical industry, which already ranks 10th worldwide in output, is to continue its rapid development under the 1976-80 plan. Annual growth has been set at 10-12 percent, somewhat below the 18 percent achieved during the 1971-1975 period, but still the highest growth target for any industrial sector. Romania's plastics output increased from 251,000 metric tons in 1971 to 347,000 in 1975. Tony Bilecky, 202-377-2801.

Industrial Assembly Equipment Exhibition. U.S. Trade Center, Paris. May 9-12. In 1975 the French spent $712 million on industrial assembly equipment. Recently conducted market research indicates that French investment in this equipment is expected to jump 30 percent by 1978 to $925 million. Due to rapidly increasing labor costs, there is currently in France a high degree of interest in increased productivity. George Ruffner, 202-377-5381.

Mini-Computer, Peripheral and Data Communications Equipment. U.S. Trade Center, Milan. May 10-14. The Trade Center's promotional efforts during the most recent show resulted in $7 million in immediate sales and $32 million in projected sales for the 91 participants. These exhibitions are well attended by dealers, importers, distributors/agents and other buyers/end-users. The preceding exhibition drew more than 2,000 blue ribbon prospects. Call 202-377-3462.

Food Processing & Packaging (FPP) and Agricultural Machinery & Equipment (AGME). Novi Sad, Yugoslavia. May 13-22. Yugoslav imports of AGME and FPP are forecast at $95 million and $55 million, respectively, for 1977. Government officials have recently designated self-sufficiency and increased export potential in these industries as a top national priority. A full range of processing, forming, filling, sealing, wrapping and packaging equipment is required in FPP; opportunities for sales of AGME include all varieties of planters, spreaders, dryers, loaders, and large combines, planters and harvesters. Contact Kenneth Nichols, 202-377-2762.

Telecommunications Equipment Exhibition. U.S. Trade Center, London. May 16-20. The U.K. import market for communications equipment reached $176.9 million in 1974 and, after a decline in 1975, is expected to grow by 13 percent annually to more than $308 million by 1980. U.S. exports represented 25 percent of 1974 imports. American-made equipment is sought for its high level of sophistication, technological reputation, and uniqueness. Thomas L. Thomas, 202-377-3459.

Containerization Technology Exhibit/Seminar. U.S. Commercial Office, Moscow. May 16-20. The USSR's Five-Year Plan for 1976-80 calls for increased use of containers in rail, sea and river transportation. In Leningrad alone, an international container port is to be completed by 1980 with initial handling capacity of two million containers annually and four-million container capacity by 1980. Call Alice Clark, 202-377-2348.

Metalworking Equipment Exhibition. U.S. Trade Center, Taipei. May 16-20. As an integral part of its plan to accelerate the development of capital- and skill-intensive industries, the government is encouraging the importation of sophisticated, precision machine tools and metalworking equipment. Imports of such high priority machinery are expected to exceed $200 million during the 1977-79 period, and U.S. goods are now favored because of their quality, durability, and high performance. Dave Horridge, 202-377-2798 or 5545

High Performance Production Materials. U.S. Trade Center, Stockholm. May 24-27. Special promotion to original equipment manufacturers in Sweden, Norway, Denmark and Finland of selected U.S. materials and milled products of these materials, including ferroalloys, nonferrous metals, nonferrous metal alloys and plastics. The total current market for high performance production materials in the Nordic countries is over $6 billion. The Swedish market alone in 1975 totaled $4 billion, and is expected to expand to $5.7 billion by 1980. Imports supplied 23 percent of the 1975 Swedish market, of which 75 percent was consumed domestically. William Beiring, 202-377-3276.

Tandem Exhibitions: Health Care Industries, U.S. Trade Center, Paris, May 31-June 2; Interhospital '77, Hanover, Germany, June 7-10. French and German plans call for additional skilled technicians, expanded hospital and clinical facilities and a host of special research programs covering various terminal and incapacitating diseases. Approximately 35 U.S. manufacturers will participate in these exhibitions. Tandem scheduling makes this "double exposure" possible for a minimal investment of both time and money. Robert B. Wallace, 202-377-3748.

In-Store Promotion, Georges Australia Ltd. Melbourne. June. Will feature U.S. men's, women's and children's wear, accessories, housewares, household linens, cosmetics and stationery. Store contact: Alan M. Forbes, Mng. Dir., Georges Australia Ltd., 162 Collins St., Melbourne. U.S. buying office: Mutual Buying Syndicate, Attn. Camille Galbo, V.P., 11 W. 42 St., New York, N.Y. 10036. Mollie Cleveland, 202-377-4705.

U.S. Pavilion, 32nd Paris Air Show. June 2-12. Internationally long recognized as the key marketplace for the aerospace industry, the biennial Paris Air Show

regularly attracts the largest international audience of industry, government and military aerospace buyers. With the total value of U.S. areospace exports for 1976 estimated to exceed $7.6 billion, the aerospace industry continues to be the largest exporter among U.S. manufacturers. In 1975, the 68 exhibitors in the U.S. Pavilion reported $2.84 million in off-the-floor sales and projected an additional $92.8 million in 12-month sales. Beryl D. Cohen, 202-377-4961.

Industrial Training Aids and Audio-Visual Equipment. U.S. Trade Center, Paris, June 6-9, and U.S. Trade Center, Milan, June 14-17. In recent years consumption of advanced industrial training aids and professional level audio-visual equipment has been increasing dramatically in both France and Italy. Both markets are heavily dependent upon imports to satisfy their individual demands for the more sophisticated equipment, technology, systems and software. The U.S. is a major source of supply and the U.S. market share is increasing steadily in both locations. Current market research has identified several specific product categories that seem particularly likely to benefit from a major U.S. export promotion effort at this time. These unique, tandem, adjacent-country overseas marketing opportunities are being made available to export-minded American firms desiring to penetrate or to increase their current sales volume in two of the world's major markets. Robert J. Blake, 202-377-4605.

Printing & Graphic Arts Equipment Catalog Exhibit. Lagos, June 6-10. The expansion and modernization under way in the printing industry of Nigeria opens new opportunities for U.S. equipment. The printing trade generally regards the U.S. as the innovator and leader in phototype setting and other industry developments. A number of Nigerian entrepreneurs are entering the printing business. Many nationally-known printers are upgrading quality and expanding their printing facilities. The government is expanding operations to increase its output of regularly printed publications from 150 to 260 titles. Although there is no local manufacture of printing and graphic arts equipment, most major publications use fairly sophisticated machines. Many publishing houses have changed to offset machines and photosetting instead of lead setting. Catalog Exhibit Section, 202-377-3973.

Metals Industry Equipment Exhibit at "TECHNOLOGY-77" International Trade Fair, Tel Aviv. June 8-15. The metalworking industry in Israel is characterized by two factors: rapid growth rate in investments, output and export, and a trend towards more sophistication and diversification. The Israeli market for metalworking and finishing equipment expanded by 92 percent during the 1968-72 period, reaching a total of $66.4 million. In 1975 that market hit $90 million and is expected to exceed $110 million in 1978. Franc D. Manzolillo, 202-377-2991.

U.S. Exhibition at "Electro '77." Moscow. June 9-23. The theme of the U.S. exhibition is electrochemical, electricity producing, transmission, and distribution equipment of all kinds. Equipment for the electrical equipment production industry is needed, including automation equipment, test/measurement instruments, and welding equipment. There will be a small section on nuclear and electrotechnical medical equipment. Automated electrical systems for the mining, metallurgy, machine tool, plastics, pulp and paper and agricultural sectors are needed. Call Judith Robinson or Gary Roberson, 202-377-3376 or 4810.

Catering and Fast Food Handling Equipment Exhibition. U.S. Trade Center, London. June 13-17. Recent market research verifies that certain areas such as the public house, cafe and fast food and catering sectors in the hotel and restaurant industry offer worthwhile potential for U.S. suppliers of microwave ovens, convection ovens, dishwashing equipment, waste disposal equipment, soft icecream makers, cook-freeze equipment, bratt pans, commercial barbecue equipment, and water conditioners. U.S. products, considered to be technically superior, have an inherent advantage. A $93 million market in 1976 is projected to grow to $108 million by 1979. George A. Kemp, 202-377-3422.

Electronics Industry Production and Test Equipment (EIPT) Exhibition and Seminar. U.S. Regional Trade Center, Singapore. June 13-17. In Singapore, U.S. firms supply over half of a $9.6 million market (1973-1975 annual average), whose growth is projected to reach $13 million by 1979. Singapore's healthy economic base and rapid development in neighboring Southeast Asian countries make the Singapore regional market for EIPT equipment attractive. Call George I. Middleton, 202-377-2471.

Medical Equipment Catalog Exhibit. Basel. June 14-18. National and local medical programs in Switzerland, rated among the most advanced in Europe, create a solid local demand for the latest in sophisticated biomedical equipment. The local market, currently estimated at $45 million, is growing at a rate of some 14 to 16 percent annually. Except for local production limited to specialized and generally advanced apparatus, imports account for almost all Swiss equipment needs. The U.S. is the second largest supplier of medical equipment to the Swiss market. There are 495 hospitals and over 10,000 doctors, of which approximately 25 percent are private practitioners. Catalog Exhibit Section, 202-377-3973.

Instruments for Analytical Chemistry and Applied Spectroscopy Exhibition. U.S. Trade Center, Tokyo. June 20-24. Japan ranks second only to the U.S. in chemical production with a value of over $14 billion; by 1980 this figure is expected to double. The market for scientific and industrial laboratory equipment to support this production is calculated at over $250 million, with the U.S. capturing more than 50 percent of the sales of imported laboratory instruments. It is anticipated that the need for laboratory instrumentation will increase in relation to production. Tom Welch, 202-377-2896.

Hydraulic, Pneumatic and Advanced Fluid Power Systems, Equipment and Components Technical Sales Seminar. Seoul and Taipei. June 20-26. Korean economic development plans call for significant upgrading of technology within local industry and expansion of key industries in the manufacturing, processing, mining and construction sectors, as well as further expansion of the machinery and petrochemical industries. These developments should provide a strong impetus for continued growth of the Korean market for fluid power and control systems, which is expected to reach $37 million in 1977. Local production is insignificant and Korea must, therefore, rely on imports for its increasing fluid power needs. Taiwan's current Six-Year Economic Development Plan (1976-81) stresses the development of local industry from labor-intensive to technology-intensive production, as well as the overall upgrading and modernization of machinery and other production equipment. Fluid power equipment has been recognized as an integral factor in attaining these goals because of its variety of applications and because it is regarded as a means of "low-cost automation." Total consumption of fluid power components and equipment increased from $8.7 million in 1973 to $24 million in 1975, some 256 percent. Contact Robert Bucalo, 202-377-4918.

Commercial Fishing Equipment Trade Mission. Ghana, Liberia, Nigeria. June 20-30. Each country has had problems in its fishing industry and plans ambitious programs to stimulate increased domestic production to meet local demand and to earn foreign exchange through exports. Best product opportunities include marine refrigeration, fish processing and fishing equipment, shipboard equipment such as engines, propellers and winches, harbor and dockside equipment including cold storage and fish processing and packaging, oceanographic equipment, offshore equipment, and marine electronics for commercial fishing vessels. Contact Wanda Ale, 202-377-3119.

Printing & Graphic Arts Equipment Catalog Exhibit. Colombia and Ecuador. June 20-July 1. Although relatively unsophisticated, the printing and graphic arts industries in these countries are rapidly developing and growing. Colombia is the fourth largest producer of Spanish-language printed matter in the world, with some 20 large firms and about 1,000 smaller firms. Both large and small organizations are "going offset," although the small firms favor inexpensive offset equipment, or duplicating machines. There is also a limited market for in-house printing in large industries, banks, and government. Ecuador also has about 15-20 large firms and 1,000 small firms in the industry, with 75 percent or more of their equipment antiquated or obsolete. To keep up with the 10 percent overall growth of the Ecuadorean economy, these firms must enlarge and modernize their facilities. Both countries have liberalized their import restrictions and initiated tax reforms aimed at further local development. Catalog Exhibit Section, 202-377-3973.

Security and Safety Equipment Exhibition and Seminar. U.S. Trade Center, Sydney. July 11-15. The continent of Australia offers promising sales opportunities to U.S. suppliers of security and safety equipment. Expanding at a buoyant rate, the total market should top $210 million by 1980, with imports accounting for $71 million. This exhibition, specifically recommended by independent research, provides direct access to a growing market. A wide range of product categories of interest to both public and private end-users will be featured. Robert McLaughlin, 202-377-4957.

Furniture Manufacturing and Woodworking Equipment Exhibition and Seminar. U.S. Trade Center, Mexico City. July 12-15. High sales potential and an expanding market exist in Mexico for this U.S. equipment, according to a market survey completed in January. The market survey summary lists most salable products in demand by Mexican plants and valuable

statistical data as well as a description of the multimedia pre-exhibit promotional campaign for this event, which will promote selected machinery and equipment encompassing the metal, wood and plastic segments of the furniture and millworking industries. To obtain the survey summary and a listing of services provided to participants, contact C. M. Cummings, 202-377-4463.

Automotive Diagnostic and Repair Equipment Exhibition. U.S. Trade Center, Tehran. July 17-21. Iran's vehicle population is expected to grow from 1 million in 1976 to 2.1 million by 1980. Domestic production should increase dramatically. Most U.S. and foreign auto/truck manufacturers are already involved in Iranian joint ventures. The number of repair facilities, now estimated at 4,200, is increasing. Iran has limited domestic production capabilities in the diagnostic and repair field and will need substantial imports to satisfy growing demand. Call Bill Monroe, 202-377-2952.

Sporting Goods and Recreation Equipment Exhibition. U.S. Regional Trade Center, Singapore. July 18-22. As the main supplier of goods and equipment to Malaysia and Indonesia, Singapore is a rapidly growing market for sporting goods and recreation equipment. The number one tourist center in Southeast Asia, Singapore's domestic consumption is supplemented by a large tourist trade in sporting equipment. Best prospects for sales are in equipment for water sports, an increasingly lucrative market, and for indoor and outdoor games and sports. With more leisure time, an increasing emphasis on health, and increasing affluence being enjoyed by the people of Singapore, now is the time to enter this diverse and fast growing multimillion dollar market. Todd W. Burns, 202-377-2051.

Electronic Components Exhibition. U.S. Trade Center, Tokyo. July 18-22. The Japanese market for electronic components grew from $2.9 billion in 1975 to approximately $4 billion in 1976. Projections for 1980 indicate a $7 billion market, with imports of $911 million, $200 million from the U.S. During the period 1977-80, Japanese imports of U.S.-manufactured components should total $770 million. The most advanced technology will insure high sales potential for integrated circuits, diodes and rectifiers, transistors, resistors, semiconductor lasers and switches. Cantwell Walsh, 202-377-4399.

Pollution Control Equipment Exhibition. U.S. Trade Center, Taipei. July 18-22. Market research shows expanding requirements for pollution control equipment and instrumentation, both air and water. Total sales of this equipment, US$58 million in 1975, are expected to reach $88 million this year and $191 million in 1980. Newly-decreed enforcement of pollution control legislation is causing sizable expenditures by Taiwan industry. In addition, there is large demand within enforcement agencies for advanced automated instrumentation, including sampling, testing, metering and monitoring instruments. Joseph Burke, 202-377-5402.

Mining and Construction Equipment Trade Mission to Bolivia, Peru and Chile. July 18-30. The mineral and construction sectors in these three Latin American countries are improving after the recent recession and decline of international mineral prices. Chile plans investments of $2.4 billion and $2 billion in the mining and housing sectors, respectively, in the 1976-81 period. U.S. suppliers of mining and construction equipment can look forward to increased demand in all three countries. Typical products represented will be off-highway trucks, excavators, drilling equipment, motor graders, mineral classification machinery, crushers, compressors, dozers, rod mills and pneumatic shovels. Geoffrey H. Walser, 202-377-2973.

Industrial Process Controls and Instrumentation Exhibit. Caracas. July 25-30. Venezuela, buoyed by oil income, is attempting to establish a modern industrial economy in the shortest possible time. Industrial process controls will be playing a major part in this development. By 1978 at least 90 percent of process control requirements will still be filled by imports and U.S. manufacturers are expected to hold a 64 percent share of the $32 million market; this is equal to a 16 percent annual growth rate over the $15 million imported in 1975. Hans J. Amrhein, 202-377-2332.

Agricultural & Food Processing & Packaging Equipment Exhibition—AGRIQUIP '77. Jakarta. Aug. 1-5. The Indonesian Government is giving priority to agriculture, i.e., the reduction of food imports and increase of export earnings from agricultural and processing operations, together with implementation of the Second Five-Year Plan, which allocates $2.4 billion for these purposes. Imports of agricultural equipment (excluding forestry) are expected to rise from $7.0 million in 1975 to $17.3 million in 1980, while FPP machinery should rise from $41.6 million to $80.8 million during that period. The market ranges from basic agricultural equipment to plastic packaging machinery. Ronald E. McCowen, 202-377-3560.

Graphic Industries Equipment Exhibition and Seminars. U.S. Trade Center, Mexico City. Aug. 15-19. The sales outlook for printing and graphic arts equipment in Mexico is very good. An extensive market survey identifies a diversified list of graphic equipment with best sales opportunities through 1981. Cumulative import sales for the next five years are estimated to top $264 million, a healthy annual growth rate of 15.5 percent. Sales by U.S. manufacturers will double and reach $41.1 million in 1981, for a market share of 57.8 percent. In 1976, Mexico imported an estimated $38 billion worth of graphic equipment. Over 50 percent, or $20.7 million, was U.S. Although there is increasing competition from European manufacturers, the outlook is for U.S. manufacturers to retain and strengthen their share. The Mexican graphic industry is interested in new technology and replacement equipment to modernize, improve efficiency, and reduce costs. Equipment such as typesetting and typemaking, printing, bookbinding and photographic will continue to offer strong sales prospects. To obtain a complete information kit including a summary of the 1977 market research, and a full description of the exhibition and strong promotional campaign for participants, contact: Dan Chambers, 202-377-4463.

Metalworking Machinery and Equipment (METALQUIPOS '77). Caracas. Aug. 29-Sept. 3. A 50 percent annual growth is expected over next three years in U.S. sales of metalworking machinery to Venezuela as that oil-rich country begins to invest $13 billion in metal-producing, automotive, tractor, ship repair, and home appliance industries. Exhibitors will receive full range of marketing services, including booth design and construction, VIP reception, extensive market promotion campaign. Hans J. Amrhein, 202-377-2332.

CHEMISTRY '77. Moscow. Sept. 1-15. The 10th Soviet Five-Year Plan (1976-80) stipulates increases in industrial production of 35-39 percent and a growth rate in the chemical/petrochemical industry of 60-65 percent—50 percent higher than that of industry overall. The Soviets are placing top emphasis on agricultural chemicals to help boost farm output. Heavy concentration is planned on increasing fertilizers, insecticides, herbicides and other plant-protection chemical products. In addition, the plan calls for satisfying consumer needs. These include increases in production of synthetic resins and fibers, plastics, synthetic rubber and tires, magnetic film, electrical insulating materials, cleaning materials, textile dyes, polymer additives, plastic wraps, and other packaging materials. Call Tony Bilecky, 202-377-2801.

General Industrial and Agricultural Equipment. U.S. Exhibition at 33rd Plovdiv International Fair. Sept. 3-10. Agriculture, a vital sector in the Bulgarian economy, will expand 20 percent during the new plan period (1976-80). A full range of farm equipment is desired. Substantial potential demand exists for U.S. industrial equipment and high technology products such as materials handling equipment, machine tools, automated equipment, and all classes of multiple operation machines superior to European equipment. Reginald Beckham, 202-377-2802.

Hotel, Institutional and Restaurant Equipment Exhibition. U.S. Trade Center, Taipei. Sept. 5-9. This market will expand rapidly over the next five years. Research indicates that food preparation and service equipment, administrative service equipment, furniture and decor, and security and safety equipment will expand from $329 million in 1976 to $402 million in 1979. The hotel sector will receive great momentum from $153 million in government expenditures on tourism over the life of the Six-Year Development Plan. Call William W. Zamula, 202-377-4227.

Advanced Business Equipment and Systems Exhibition. U.S. Trade Center, Tokyo. Sept. 12-16. The Japanese market for such products was $975.5 million in 1974, and the forecast for 1979 is $1.5 billion. Japanese imports are estimated at $208 million for 1979, of which the U.S. share will reach $125 million. Featured will be labor-saving office equipment and systems which save time, cut costs, accommodate the Japanese shift to multinational enterprise and meet the exacting demands of the expanding Japanese information processing community. Robert Levine, 202-377-4379.

Process Control and Instrumentation Exhibition. U.S. Trade Center, Sao Paulo. Sept. 12-16. The Brazilian market for industrial process control equipment has shown remarkable growth in the past and should maintain a strong pace. Brazil imports 90 percent of its process control and instrumentation equipment, and the U.S. enjoys a 50 percent share. Between 1973 and 1975 imports went from $24 million to $48.5 million. Forecasts for 1978 estimate total imports to reach $60 million. Bill Vigneault, 202-377-5427.

Advanced Medical, Surgical, and Dental Equipment—Brno Engineering Fair. Sept. 14-22. Czechoslovakia plans to upgrade the level of medical services to its general population through 1980. Advanced medical research equipment, examination and diagnostic instruments, blood and organ analysis instruments, sophisticated surgical equipment, advanced life support systems, and radiological diagnostic and treatment equipment all have good potential. Gary Roberson, 202-377-3376.

Building Products and Systems Exhibition and Seminar. U.S. Regional Trade Center, Singapore. Sept. 19-23. Total imports of building and construction products and equipment into Singapore increased over two times from 1972 to 1976. Projections indicate another two-fold gain by 1980, with the market reaching $1.7 billion. Imports of building products and systems have followed the same pattern, more than doubling from 1972 to 1976, and seen totaling almost $1 billion by 1980. U.S. exports of special building materials and equipment are expected to increase phenomenally due to regional and local affluence and sophistication and the quality, standards, variety and modernity of U.S. manufacturers. Contact J. Lee Barnes, 202-377-3893.

Air and Water Pollution Control Technical Sales Seminar. Austria, Poland and Hungary. Sept. 19-30. All three countries have policies which aim at upgrading air and water quality. Best sales prospects for U.S. firms include biological water purification systems, scrubbers and precipitators to remove pollutants from smoke stack emissions, water quality control systems, equipment to measure air quality and pollution from automobile exhausts, and instrumentation from research institutions. Alice Clark, 202-377-2348.

SPOGA 77—Sporting and Camping Equipment, Cologne, Germany. Sept. 25-27. Considered the world's major international exhibition for sporting and camping equipment. SPOGA 76 hosted more than 1,915 exhibitors from 35 countries and, in only three days, attracted 42,800 trade visitors from 70 countries. Commerce's pavilion will accommodate 40 U.S. manufacturers. Call Loretta Allison, 202-377-3748.

Automated Construction Seminar Exhibit. U.S. Commercial Office, Moscow. Sept. 26-30. The 10th Soviet Five-Year Plan (1976-80) calls for increased mechanization in all phases of construction, particularly in finishing operations. Construction of at least 545 million sq. meters of housing, and schools to accommodate an additional 8 million children, is planned. Output of building materials is to increase by 30 percent. Area of greatest Soviet interest is equipment and technology to improve methods of construction with concrete and beautify results. Also of interest is equipment for finishing work, light protective exteriors, thermal insulation materials, floor coatings, and restoration of buildings damaged by earthquakes. Jim Robb, 202-377-4810.

Telecommunications, Radio and Television Equipment Exhibition. Caracas. Sept. 26-Oct. 1. Venezuela, because of expanding requirements for imported telecommunications equipment, offers an attractive market. Apparent consumption of telecommunications equipment in Venezuela in 1976 was $172 million, projected to grow to $222 million by 1979. Hans J. Amrhein, 202-377-2332 or 4831.

Licensing, Investment Abroad

Licensing and investment proposals from foreign firms are listed in these columns. Specific product interests in each proposal are highlighted in bold type to facilitate identification and each proposal is preceded by the appropriate four-digit product number taken from the Standard Industrial Classification (SIC) Manual.

Background information on opportunities abroad and assistance on overseas investments are available from the Overseas Products and Investment Opportunities Staff, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. "P" numbers should be used when responding to any of the specific proposals listed.

WTDR indicates that a World Traders Data Report containing financial and background information on the foreign firm is available for $15 from the Export Information Division, Room 1033, U.S. Department of Commerce, Washington, D.C. 20230. WTDR request forms may be obtained from any Commerce District Office.

OPIC indicates that the country involved is eligible for investment insurance coverage and financing from the Overseas Private Investment Corporation. Information regarding applicable coverage may be obtained from OPIC, Washington, D.C. 20527.

2041, 2099—SWITZERLAND—Licensing agreement desired for production of (1) **ready-mix breads for consumer use;** (2) **ready-mix desserts, cakes and similar sweets;** and (3) **textured vegetable protein.** H. R. Christen, Pres., H.B. Christen & Partner, Handelsogentur, Hengenheimerstrasse 287, 4055 Basel. P-77190.

2091—ECUADOR—Firm seeks U.S. collaboration to establish **plant for processing, packing and canning seafoods.** Initial production will be tuna, white and shell fish. Prefeasibility studies available. Fernando Larrea Vasco, Promotora Empresarial S.A. (PROEMSA), Casillo 2729, Quito. (Spanish preferred). P-77191. OPIC.

2331—MEXICO—Firm desires to establish factory with U.S. participation to manufacture **women's clothing, especially blouses.** Licensing arrangements for use of U.S. technology and trademarks also of interest. Interested firms send samples and literature to Abraham Cohen, Rio Marne 411-1, Calonia del Valle, Garza Garcia, N.L. Telephone: 42-14-22 or 56-47-11. P-77162.

2386—INDIA—Firm seeks joint venture with U.S. firm to establish plant to manufacture **leather garments.** Contact Rajeev Deshmukh, Asst. Dir., Consulate General of India, 3 East 64th St., New York, N.Y. 10021. P-77163. OPIC.

2522—UNITED KINGDOM—Small firm seeks licensing arrangement to manufacture **office equipment or similar products in sheet metal form.** Presently manufactures microfilm storage/retrieval equipment, computer storage equipment, microfilm stands, sheet metal consoles, etc. Employs 70, reports annual sales $1 million. Brian P. Hamilton, R. C. Searle & Co., Ltd., Delamare Rd., Cheshunt Hertfordshire. P-77192.

2621—YUGOSLAVIA—Seeks joint venture to establish **wood pulp** mill with annual capacity 160-170,000 tons. U.S. participant would provide production technology and equipment in return for up to 49 percent equity. Estimated cost $90-$100 million. Major manufacturer of pulp, paper and fiber products, a leading world supplier of cellulose; employs 10,000. Ing. Tomislav Djurdjevic, Dep. Dir. Gen., INCEL, Medeno polje b.b., PP78, 78001 Banja Luka. Telephone: 078/21944; Telex: 45161 & 45123. WTDR. P-77185. OPIC. Further details available from Overseas Products & Investment Opportunities Staff, Office of Export Development, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230.

2641—GERMANY — Seeks to produce under license **coated and/or impregnated industrial papers.** Important and experienced manufacturer/distributor of paper specialties. Maintains sales offices throughout Germany, some other western European countries. Employs 300, annual sales about $40 million. Efficiently managed, enjoys very good reputation. Rolf Buscher, Mgr., Brangs & Heinrich, Bahnhofstrasse 11, D-7022 Leinfelden-Echterdingen 4; Cable: HEINRICUS, Telex: 07-255-424, Telephone: 0711/752077. WTDR. P-77180.

2831, 2834—FRANCE—Seeks licenses to produce **pet care products and pharmaceuticals for veterinary use.** Established 1968, employs 100, annual sales 40 million francs. Research and manufacturing operation specializing in pet care products and pharmaceuticals for animals. Dr. Max Rombi, Mgr., Centre de Recherches Biologiques Virbac, Zone Industrielle, 06510, Carros. P-77193.

3079, 3589—AUSTRALIA—Large plastics company, specifically interested in injection molding of polypropylene, high impact styrene, or A.B.S., seeks both finished products and licenses to manufacture **toys and in-ground swimming pool equipment such as pumps, valves, filters, etc.** Representatives will be in U.S. for several weeks commencing March 10. Ken York, Tech. Dir., Nally Ltd., Goodsell St., St. Peters, N.S.W. 2044. P-77179.

3079—FRANCE—Seeks licenses to manufacture **plastic parts** for industrial machinery and consumer goods. Would also distribute finished products. Established 1968, employs 2,800, annual sales $124 million. Produces accumulators, processes plastic materials. Mrs. Villoteau, Export Mgr., Compagnie Europeenne d' Accumulateurs, Department "Objets Moules," 163 Boulevard de Stalingrad, 94400 Vitry sur Seine. Cable: MANUSOLANT 94, Telex: 204 864F, Telephone: 726-4929. P-77186.

3211, 3221, 3231, 2816—MEXICO—Seeks joint venture arrangement and technical assistance for production of **glass, stained glass, mirrors and bottles.** Produces barite and desires to contact U.S. companies interested in buying barite products. Luis Velazquez Ortiz, Tehuantepec 86-304, Mexico 7, DF or Calle Culiacan 101-701, Mexico 11, DF. P-77181.

3261, 3264—BOLIVIA—Seeks licensing

agreement for production of **electric insulators and sanitary fixtures.** Also desires technical assistance. Presently manufactures ceramic tableware, lamps, ashtrays, etc. Lozabol Ltda., Roberto Gonzales Pelaez, Casilla 3064, Cochabamba. P-77164. OPIC.

3264—SAUDI ARABIA—Seeks to establish factory to produce **pintype and suspension low and high voltage porcelain electrical insulators.** Should produce 500 tons per year. Basic raw material required is available locally. Total domestic demand 720 tons per year. Desires joint venture partnership (preferably 50/50) but willing discuss other arrangements. U.S. firm should provide machinery and equipment, technical know-how and expertise. All local assistance provided by Saudi company. Presently imports and wholesales military supplies and trucks through government tenders and building material. Mohamed Park, Dir., Int'l Affairs, Tahany Corp., P.O. Box 1057, Jidda; Telex: 40115 JD APHTL (Attn. Tahany, Mohamed Park); Cable: GOODCHANCE, JIDDA. WTDR. P-77182. OPIC.

3356—INDIA — Government-established company seeks U.S. technology to manufacture **extension drilling equipment and improve quality of tungsten carbide tipped drill rods** now being manufactured. Established 1972, employs 11,800 people. Major business is extraction and sale of gold from mines located in Karnataka State. J. P. Appleton, Sec., Bharat Gold Mines Ltd. (BGM), Suvarna Bhavan, Oorgaum P.O., Kolar Gold Field 563120, Karnataka. P-77194. OPIC.

3433—MEXICO—Interested in manufacturing under license **solar heating systems for both residential and industrial applications.** Seeks technical know-how; can provide capital. Well established firm, makes range of products including telephone cables and automotive accessories. Enjoys excellent commercial reputation. Director of Publicity and Industrial Relations, Conductores Monterrey, S.A., Av. Conductores al Ote., Apartado Postal 2039, Monterrey N.L.; Telephone: 83/54-14-40; Telex: 038860. WTDR. P-77178.

3441—AUSTRALIA—Seeks license or joint venture in **civil construction or structural steel technology.** Specific product interests pile driving equipment, water pumps used in construction industry, welding equipment and presses. Director plans visit U.S. late March for one week. Interested U.S. firms contact Overseas Products & Investment Opportunities Staff, Office of Export Development, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230; or A. Parisi, Dir., Allco Steel Erectors Pty., 86 Bourke St., Carrington, Newcastle, N.S.W. 2294. P-77184.

3443—GERMANY—Seeks licenses for (1) **special equipment, chemical process engineering for evaporation, extraction, separation, crystallization and filtration;** and (2) **environmental engineering, treatment of liquid wastes.** Also open to discussions on joint ventures in these areas. Specializes in heat transfer, evaporation and drying, high temperature, thin film and high viscosity. Maintains network of engineering and sales offices throughout Europe; exports worldwide. Employs 1,100. Herr Dipl. Ing. Hans-Joachim Bittner, Head of Product & Application Research, LUWA-SMS GmbH, Process Division, Kaiserstrasse 13-15, D-6308 Butzbach. Telephone: 06033-85208, Telex: 0410241. P-77165.

3500—GERMANY—Interested in cross licensing arrangements with U.S. companies. Seeks licenses in: (1) **heat engineering** (solar heating, hot water apparatus, steam traps); (2) **power transmission and gearing** (heavy duty and special gears, transmissions, welded gear housings for flood gates, sluices); (3) **steel fabrication** (special components and parts for use in agriculture and industry); and (4) **materials handling** (heavy duty industrial shelving systems). Offers licenses in heat engineering, power transmission, materials handling. Also offers engineering, design and manufacturing expertise to U.S. companies interested in entering German, EEC markets. Ingenieur Heinrich Goetz, Mannheimer Landstrasse 36, D-6101 Nieder-Kainsbach, Nr. Darmstadt. Telephone: 06161-550. P-77183.

3531—FRANCE—Seeks license to manufacture **heavy-duty lift trucks** for use on construction sites. Presently produces lifting equipment, agricultural machinery and construction equipment. Employs 700, annual sales $50 million. Mr. Lepers, Comm. Mgr., Braud & Faucheux, 44150 Ancenis. Telex: 710521; Telephone: 83-14-00. P-77166.

3535—SPAIN — Medium-sized manufacturer of **pneumatic tube systems and mail conveyor belts** seeks joint venture. Interested in expanding operations in Spain and South America, and opening new markets in West Africa. Seeks about $300,000 for proposed expansion. Has produced 75 percent of pneumatic tube systems installed in Spain and has marketed equipment in Ecuador and Venezuela. Manuel Puig, AIRETUB, Camino de la Riereta, s/n-Nave 15, Hospitalet de Llobregat (Barcelona). WTDR. P-77195.

3541—KOREA—Seeks U.S. partner with latest technology for joint venture to produce **grinding machines.** American participant offered 49 percent equity in project, estimated to cost $1 million. Korean company has completed feasibility study. Sole manufacturer and supplier of explosives in Korea and has broad range of business and financial interests operating through 11 affiliates. In Kie Hong, Mng. Dir., Korea Explosives Co. Ltd., 12-1 Seosomoon-Dong, Chung-Ku, Seoul 100. Cable: KOREAMITE, Telephone: 23-0381. P-77200. OPIC.

3553—FRANCE—Wants to manufacture under license **woodworking machines, plastic and lumber processing machines.** Currently markets products manufactured by parent company. Established 1972, annual sales $7 million. Mr. Veche, Comm. Mgr., Generale de Mecanique et Thermique, Rue Lavoisier, Lambres-les-Douai, 59505 Douai. Cable: HONANOR DOUAI; Telex: 820 396 Douai; Telephone: 88-31-11. P-77167.

3559—GERMANY—Leading manufacturer of special machinery seeks cooperative arrangements with U.S. firms. Interested in technology exchange, cross licensing. Product line includes **evaporators and complete thickening units, vacuum drying cabinets, agitator tanks, single roll cooling units, mixers and cylinders for heating and drying,** is sold to chemical, petrochemical, food, textile and pharmaceutical industries. Employs 200, established 1918. Herr Manfred A. Lange, Pres., Kelzenberg & Co., Postfach 770 Valencienner Str. 66-76, 5160 Dueren. Telephone: 02421/6241; Telex: 0833853. P-77168.

3559—GERMANY—Seeks licenses to produce **sophisticated environmental control systems and sewage treatment, purification and water disposal systems and plants.** Activities now include development, engineering, design and marketing of industrial equipment and systems. Operates throughout Germany and Western Europe. Has staff of 80. Adrian Haaksman, Prokurist VTG, Hollfelder Consult GmbH, Eisenstrasse 2, D-6090 Ruesselsheim. Telephone: 06142-65021, Telex: 415702. P-77187.

3564—ARGENTINA — Leading manufacturer of air filtering and air conditioning equipment for institutional industrial use, seeks licensing agreement for manufacture of **fiberglass filter media** for air filtration in ventilation and air conditioning systems. Would cover know-how and design of manufacturing equipment (eventually, machinery could be imported from U.S.), including on-site assistance by experts. Receptive to any type of proposal, willing to send representative to U.S. once agreement reached. Mario Cohen, Vice Pres., Sempere & Cohen, S.A., Av. Centenario 1551, 1878 Quilmes, Pica., Buenos Aires. P-77188.

3573—UNITED KINGDOM — Seeks to manufacture under license **16/32 bit minicomputers** to sell to industrial automation and process control markets.

Important Notice

Most member countries of the League of Arab States employ a secondary boycott against foreign firms which undertake certain specific types of business relationships with the State of Israel. The Commerce Department will not disseminate nor make available for inspection any tenders or trade opportunity documents which contain conditions intended to support such boycotts, or which are based on documents known to contain such provisions. Trade or investment opportunities published herein are not presently known to be subject to such conditions. However, it is possible that U.S. firms responding to opportunities from Arab countries may be asked at some stage of a transaction to participate in an Arab boycott-related restrictive trade practice as defined in the Department's Export Administration Regulations (15 CFR, Part 369 et. seq.).

Firms are reminded that it is the policy of the United States (a) to oppose restrictive trade practices or boycotts fostered or imposed by foreign countries against other countries friendly to the United States, and (b) to encourage and request U.S. concerns engaged in the export of articles, materials, supplies, or information to refuse to take any action, including the furnishing of information or the signing of agreements, which has the effect of furthering or supporting such restrictive trade practices or boycotts. Accordingly, U.S. concerns receiving such requests to participate in a restrictive trade practice or boycott are encouraged and requested to refuse to comply with them.

Firms are further reminded that U.S. concerns receiving requests to participate in a restrictive trade practice or boycott must report such request to the Department of Commerce in accordance with Section 369.4 of the above-cited regulations.

Produces minicomputers, process hardware, conversion systems, distributes magnetic tape decks. Employs 111. A. F. Appleton, Mng. Dir., Computer Instrumentation Ltd., School Lane, Chandlers Ford, Eastleigh, Hampshire S05 3YY. P-77169.

3600—INDIA—State development organization seeks licenses, similar agreements for production of electronic equipment and components. Interests include (1) **communications equipment** (receivers, TV studio equipment, teleprinters); (2) **radar equipment** (traffic and marine navigational); (3) **medical instruments** (electrocardiograph, laser equipment for surgery); 4) **computers** (minicomputers and peripherals); (5) **process control instruments** (power system computers, elevator controls); (6) **aviation and space technology instruments;** (7) **electrical units and subassemblies** (synchro and miniature motors); and (8) **electronic components** (capacitors, semiconductor devices). Promotes growth of electronics industry in Karnataka State, provides assistance to local entrepreneurs. R. K. Baliga, Chmn. and Mng. Dir., Karnataka State Electronics Development Corp. Ltd. (KEONICS), 30 Race Course Rd., Bangalore 560001, Karnataka. P-77170. OPIC.

3622—UNITED KINGDOM — Seeks licensing agreement for manufacture of **marine electronic equipment.** Operates as manufacturer, distributor, exporter of navigation, positioning and steering control systems including vertical and azimuth gyros, and as distributor, exporter and importer of satellite navigation and doppler sonar equipment. R. W. Guenier, Mng. Dir., S. G. Brown Ltd., Greycaine Road, Watford, Herts WD2 4XU. WTDR. P-77171.

3661—MEXICO—Interested in joint venture to manufacture **automatic, wireless, direct dial telephones for mobile units (vehicles).** Seeks technical and financial assistance from U.S. participant. Also wants to produce such related accessories as antennas, radio transistors. Telephone transmission would cover wide area. Alejandro Obregon Romero, Manuel Doblado 14, Circuito Diplomaticos, Civdad Satelite, Estado de Mexico, Telephone: (905) 562-3750. P-77196.

3662, 3825—GERMANY—Firm desires licensing arrangement for production of **electronic instruments** to measure electrical quantities, preferably in communications. Established 1950; manufactures measuring and testing instruments, indicators, oscilloscopes, sweep rigs, power packs, photometric equipment for microscopes, etc. Gerhard Kafka, Knott Elektronik GmbH, Benedikstrasse 1, D-8021 Hohenschaeftlarn. P-77172.

3662—UNITED KINGDOM—Seeks licensing agreement for manufacture of **avionics and aerospace linked, electronic equipment.** Operates as manufacturer/overhaul repair unit for flight recorder systems, I.F.F. equipment, aircraft instruments and electronic test equipment. Established 1973. Raymond S. Street, Dir., Ray-Tech Avionics Ltd., Wycombe Air Park, Booker, Marlow, Bucks. WTDR. P-77173.

3670, 3873—GERMANY — Manufacturer of jewelry, watch cases, watch bracelets and spectacle frames interested in finding joint venture/cooperation partner for **production of branded consumer goods, electronic components, watch modules, or any space "fall-out" articles.** U.S. partner should be in position to grant licenses for latest technology and know-how for such items. Presently unable to operate at full capacity, but has qualified staff and necessary machinery. Established 1898, employs 400. Dr. Juergen Koester, Kollmar & Jourdan AG, Bleichstrasse 80, D-7530 Pforzheim. Telephone: 07321/2901; Telex: 783718; Cable: PFEILKETTE. WTDR. P-77174.

3679—INDIA—Interested in joint venture to manufacture **cassettes, cartridges and magnetic tapes.** Plans to enter domestic, foreign markets for pre-recorded music tapes. Seeks equipment, know-how and basic materials from U.S. company prepared to take minority position and provide export assistance. Initially plans to produce one million units of cassettes annually, expand into manufacture of magnetic tapes. Anticipates rapidly growing domestic market for these products. P. Deb, Business Promotion Services, 58/32 Prince Anwar Shah Rd., Lake Gardens, Calcutta 700045. Further details available from Overseas Products & Investment Opportunities Staff, Office of Export Development, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. P-77175. OPIC.

3699—GERMANY — Seeks licenses to manufacture **tools for electronics industry and newly developed products in field of electronic hardware.** Established 1933, produces and markets mechanical products for electronics industry such as frames, front panels, assembly rails, ventilators and soldering equipment. Also represents four U.S. manufacturers of such equipment. Employs 200 and markets throughout Germany. Fred Huber, Hans Knuerr KG, Ampfingstrasse 27, D-8000 Muenchen 80. P-77176.

4210—SAUDI ARABIA — Firms seek joint venture arrangements for establishment of **trucking company.** Background information may be obtained by writing Overseas Products & Investment Opportunities Staff, Office of Export Development, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. P-77177. OPIC.

5031—GERMANY—Interested in possible cooperation and/or joint venture to **export veneers and cut lumber to Europe.** Established 1933, experienced as dealer in veneers, interested in adding cut lumber (white oak, kiln dried) for furniture industry. Owns sufficient warehouse space, deals mainly in walnut, oak, pine and veneers. Frank Backe, Mgr., Manfred Backe KG, Raiffeisenstrasse 25, D-7024 Filderstadt 1. Telex: 7255845, Telephone: 0711/772202. WTDR. P-77189.

5812—ITALY—Official of large **industrial catering** firm plans to visit United States in April to research new developments in industrial catering field, visit facilities and discuss possible know-how agreements with U.S. firms. Will be in Washington, D.C., New York and Boston areas for two-three weeks. Established 1966, 450 employees, yearly turnover $7 million. Interested firms contact Mary C. Inoussa, Overseas Products & Investment Opportunities Staff, Office of Export Development, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. Telephone: 202-377-4065 or 377-3786. P-77202.

7011—NIGERIA — Businessman desires U.S. partner to build **hotel containing 400-600 rooms.** Project has been approved by Oyo State Government. Overseas Products & Investment Opportunities Staff, Office of Export Development, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. P-77198.

7011—PAKISTAN—Foreign collaborator sought to **construct medium-priced hotel** in Karachi. 350 rooms, cost approximately $8 million. U.S. investor would be expected to take 49-50 percent equity. Overseas Products & Investment Opportunities Staff, Office of Export Development, Room 4021, U.S. Department of Commerce. P-77199. OPIC.

7011—DOMINICAN REPUBLIC—Financial investor or hotel company desired for participation in construction of **160-200 room hotel.** In engineering and architectural business. U.S. investment of $1 million required. Hotel will be built on 30,000 sq. meters on north coast. Overseas Products & Investment Opportunities Staff, Office of Export Development, Room 4021, U.S. Department of Commerce, Washington, D.C. 20230. P-77197. OPIC.

8911—VENEZUELA — Electrical engineering consulting company interested in joint venture, technical assistance. Seeks contacts with U.S. firms specializing in electrical power systems. Doing electrical power feasibility studies for CADAFE, state-owned power company. Technical staff comprised of electrical engineers with over 10 years experience. Increasing demand for electrical engineering services. N. Estava, Director Ejectivo, Procomil SRL, Calle San Antonio, Eidicio Ninina-Planta Baja, Urbanizacion San Antonio, Caracas. WTDR. P-77201.

Licensing In U.S.

For additional information on these opportunities to manufacture foreign firms' products in the United States under a licensing agreement or in partnership, write the Domestic Investment Services Staff, Bureau of International Commerce, Room 4020, U.S. Department of Commerce, Washington, D.C. 20230 (202-377-5361), referring to the appropriate file number.

Joint Venture

GERMANY—Large company wants partnership in small U.S. company manufacturing and/or developing custom-made large **integrated circuits** (SIC 36741). Write: Dr. Alois Knoll, Mgr., Centra Albert Buerkle GmbH & Co. KG, Boeblinger Strasse 17, Postfach 20, D-7036 Schoenaich bei Stuttgart. Cable Centra Schoenaichwuertt; telex, 07-265 859; telephone, 07031/66671. File 3296.

GERMANY—Large company is interested in partnership with U.S. firm of 100 to 200 employees producing **metal tubing.** German firm manufactures flexible metal piping, metal bellows, expansion joints, pipe supports, ventilation pipes, other. Write: Commercial Section, U.S. Con. Gen., Urganstrasse 7, D-7000 Stuttgart. File 3297.

NORWAY—Company seeks joint venture in U.S. for **purification process**—washing exhaust gases in alkaline solution to remove acids, heat and solid particles, and recovering heat by heat exchanger in which organic compound is converted from liquid to vapor. Acids are collected in anode chamber of electrolytic ion-separator. Alkaline solution is recovered

in its original form in cathode chamber fo recirculation. Write: Henry L. Thoresen, 1845 Skotbu. File 3298.

Licensing

UNITED KINGDOM — Company seeks U.S. firm to manufacture under license its exclusively designed **dresses, skirts, shirts, vests, bikinis, ladies purses, and other items, in chamois leather.** Write: Geoff Kay, Mng. Dir., Kaye-Barge Ltd., 46 Harrowby St., Marble Arch, London W1H 5HF. File 3299.

UNITED KINGDOM — Company seeks U.S. firm to publish, market **calendars and books** under license. Write: David Cummins, Chmn., Darrowby Ltd., C B Press, Castlegarth, Thirsk, N. Yorkshire. File 3300.

UNITED KINGDOM—Foundry wants to establish reciprocal licensing arrangement for **foundry and allied equipment and products.** British company offers its hot box core blowing equipment and shell core blowing equipment. Write: K. E. Wilcox, Group Sales Mgr., Steloy Foundry Machines Ltd., Hayes Industrial Estate, Halesowen, Worcester, B63 2RS. File 3301.

GERMANY—Company offers licenses in **heat enginering** (water and oil heating systems for tire recapping and other machinery); **power transmission** (heavy-duty steel gearing and transmissions for water control and industrial use); **materials handling** (heavy-duty industrial shelving systems). Write: Ing. Heinrich Goetz, Mannheimer Landstrasse 36, D-6101 Nieder-Kainsbach, Nr. Darmstadt. Telephone, 06161-550. File 3302.

GERMANY—Company offers for production in U.S. under license its patented **hair clipper** (human and animal use). According to company, clipper may be used by any unskilled person, and its safety device prevents injuries and inaccurate cutting. Write: Wilhelm Gumbmann, Herbstahalde 15, D-7000 Stuttgart 1. Telex, 07-22 775; telephone, 0711/65 34 80. File 3303.

SWITZERLAND—Leading manufacturer of **advanced blasting systems** offers its complete line of nine machines and variety of auxiliary equipment and accessories. Some models are designed for small production plants, laboratories, dental applications and manufacture of special items such as precision tools; larger models operate on principle of newly developed impulse pressure blasting process; other larger models are designed for mass production operations. Write: Mr. Gysin, W. Hunziker AG, 5054 Kirchleerau. Telephone, 064/83 15 15. File 3304.

SWITZERLAND — Jeans producer is looking for licensee in southern U.S. to produce **jeans** to his design. Write: Mr. Susskind, Mgr., Ventex Stallion Jeans AG, Sachseln. He plans trip to U.S. at end of March. File 3305.

SWEDEN—Inventor offers special **anchoring device for pleasure boats.** Patents are pending in several countries. File 3306.

GERMANY—Large company offers its technology (know-how, licensed processes) to U.S. manufacturers in **HF acid-proof and wear-proof (interior) linings for industrial apparatus, containers, vessels, chimneys, related equipment.** Write: Dr. Gerharwn Ann, Gewerkschaft Keramchemie, D-5 433 Siershahn. Telex, 0863116; telephone, 02623-89370; cable, KERAMCHEMIE SIERSHAHN. File 3307.

The following trade opportunities are based on reports received from the U.S. Foreign Service—Department of State by the Trade Opportunities Program, Room 2323, U.S. Department of Commerce, Washington, D.C. 20230. The commodities in which foreign firms have interest indicated by codes 0111-1799 and 4011-8999 are based on the Standard Industrial Classification Manual, 1972; codes 20 through 39 come from Numerical List of Manufactured Products (New 1972 SIC Basis), MC72-1, 2. Codes beginning with 99 are from the TOP coding system.

U.S. firms should be aware that the listing in Commerce America *of opportunities to trade in specific commodities and technical data does not necessarily imply approval of their export by the Department of Commerce pursuant to the Department's Export Administration Regulations. Applicable export licensing regulations must be followed.*

Every effort is made to include only traders with good reputations. However, the Department cannot be responsible for any trade relations.

WTDR indicates that a World Traders Data Report on this specific firm is available at $15 from the Export Information Division, Room 1033, U.S. Department of Commerce, Washington, D.C. 20230. A WTDR is a trade profile which contains commercial information including financial references, on an individual foreign firm. Orders must include complete name and address of the subject firm and be accompanied by payment. Further information concerning WTDRs and request forms are available at each Commerce District Office.

The mark (•) indicates that this trade opportunity is a request for bids by a foreign government agency.

Direct Sales

Crop services

0721, 2899000, 3523000—NICARAGUA—Outbreak of coffee tree "rust" (fungus) has created requirement for large quantities of copper-based fungicides. Approximately 200,000 acres of coffee trees involved. As many as 3,000 gasoline-powered, back-pack portable sprayers (one or two gallon tank) may be needed to apply fungicides. There may also be limited market for hand-powered and vehicle-mounted sprayers. All interested suppliers contact L. R. McIntyre, Room 2106, U.S. Department of Commerce, Washington, D.C. 20230; 202-377-3420.

Heavy construction

• **1620—TURKEY**—Bank of Provinces invites firms to bid for supply of equipment, installation of complete systems, and turnkey delivery of sewerage works preliminary treatment and submarine outfall stations to be erected at Atakoy and Kucukcekmece for Istanbul, primarily comprising 1) Atakoy (2 cu. m/sec. max. flow): four each vertical shaft, drypit type, single-stage, mixed-flow, nonclog, high delivery head discharge pumps, 200 hp electric motors and appurtenances. Six "archimedes" screw type, low delivery head intake pumps. 2) Kucukcekmece (1.5 cu. m/sec. max. flow): four discharge pumps (same as one above, except 150 hp motors). Three "archimedes" screw type intake pumps. Option six months. Delivery period to be quoted in tenders. Prices in terms of f.o.b.-c.i.f.-c.f.-Istanbul. Bidding specifications in English must be obtained from Iller Bankasi Genel Mudurlugu, Ulus, Ankara, for TL 2,000 (TL 16.50 = U.S.$1) per set, prior to submitting offers. Bid deadline March 30.

Textile goods

2294041, 2891400—SWEDEN — Nylon flock for plastic, paper, sheet metal surfaces; adhesives (synthetic) to be used with flock. Estab. 1974, share capital skr 50,000, 1976 turnover skr 3 million. According to local banking sources, company has met business obligations satisfactorily. Reply to Thomas Holmquist, Skandinaviska Flocknings AB, Box 2067, S-421 02 Vastra Frolunda. Tel 031/45 05 90.

Hats, caps, millinery

• **2352000—SRI LANKA** — Tender No. COM/TEN/77/68 for supply of 1,500 peak caps. Copy of tender document can be obtained from Chairman, Tender Board, Ministry of Defense and Foreign Affairs, P.O. Box 572, Colombo. Closing date April 26.

Converted paper, board products

• **2640000, 3950000—ZAMBIA** — Government invites bids for supply of various quantities manila files, pencils, pens, punches, typewriter ribbons and other office supplies. Bid deadline April 1. Prices must be quoted in Zambian currency. Samples should be forwarded carriage paid, to Director of Supplies, P.O. Box 476, Lusaka. Tender documents containing specifications available from U.S. Department of Commerce, Construction and Forest Products Division, Room 2120, Washington, D.C. 20230; 202-377-3530.

2643351, 2643311, 3312111, 3551349 — ZAIRE—Kraft paper bags for sugar—900,000 size 60 x 72 x 13 cm with 5 walls as follows: I Havana kraft wall 90 gr/m2; 1 bituminous wall 125 gr/m2; 3 Havana walls 75 gr/m2. Will be used to ship 50 kg of granulated sugar. Bags to be shipped pre-labeled. 1,550,000 double-walled paper bags 45 x 36 x 11 cm, to ship 20 small bags each containing ½ kg of sugar. Coke metallurgical w/following specs: size 40-60 mm; moisture 4 to 7 percent or 5 to 8 percent; ash 7.5. to 9.5; volatiles 1 percent max.; sulphur 1 percent max.; net effective cal.: 7200/kg to

7500/kg. Delivery in June. Sugar plant machinery—2 top rollers with complete shaft & threaded holes; without chevrons. Sketch m 788 1 bagasse roll with complete shaft as per sketch m 788. 2 complete rollers with fulton type shaft per sketch m 1055. Sketches available below address. Largest sugar refinery in Zaire, needs price quotations soonest in order to compete for allocation of intl. loan. After cabling offer suppliers requested send proforma invoice in 8 copies. Quotation terms f.o.b. Write: Sucriere-Kwilu-Ngongo, BP 10, Kwilu-Ngongo, Bas Zaire. Cable SUCRIERE - KWILU - NGONGO; telex KINSHASA 303.

Industrial chemicals

• **2819000—KOREA**—Supply of catalysts and chemicals (15 items) as follows: (1) naptha steam reforming; (2) naptha reforming; (3) carbon monoxide conversion; (4) sodium phosphate tribasic, 10 mt; (5) di-isopropanol amine, 10 tons; (6) cation resin catalyst; (7) hydrogenation catalyst; (8) COS conversion catalyst; (9) silicagel, 6,464 kg; (10) steam reforming catalyst-hydrocarbons (rich gas); (11) methanol catalyst; (12) methanol catalyst; (13) activated carbon, 1,900 kg; (14) platinum rhodium gauze catalysts; (15) methanation catalysts. Various quantities and specifications. Individual bids on each item requested, in U.S. dollars, f.o.b., port of loading, ocean freight and c. & f., port of discharge basis. Tender No. NFX-77022-P3. bid deadline April 6. Submit bids to Office of Supply, Government of Republic of Korea, Seoul. Copies of invitation for bids with quantities, specifications, packing and other special instructions and details available from Chemicals and Rubber Program. Materials Div., BDC/OBRA, Room 2104, U.S. Department of Commerce, Washington, D.C. 20230; 202-377-3468.

Drugs

• **2834000—ZAMBIA** — Government tender for various antibiotics including injectables, suspensions, tablets, capsules, drops, ointments, and syrups. Closing date April 1. Contact L. McIntyre, Room 2106, U.S. Department of Commerce, Washington, D.C. 20230; 202-377-2239.

Chemical products

2899598—BELGIUM—Plastic wood preparations. Reply to Thierry Devos, Asst. Mgr., Unibra S.A. Avenue Des Arts 40, 1040 Brussels, Tel. 513.84.08, Telex 21018.

Glass products

3231638—FRANCE — Laboratory glassware. Direct sale for resale, distr. or agency. Founded 1921, capitalized $865,000. Mfr. & exporter of anti-explosive equip. for mining & chemical industries. Makes electric installations for large companies, & public & govt. organizations. Prospective customers incl. hospitals, clinics, doctors, physical therapists & general public. Employs 350. Sales area worldwide & sales network incl. 8 traveling salesmen. Excellent credit rating. Reply to—Mr. Renaud, Societe Alsacienne d Installations Techniques, S.A.I.T., 10 Rue du Zornhoff, 67700 Saverne. Telex 870725; phone 88-91.32.21.

Concrete, gypsum, plaster products

• **3272100, 3321500, 3494100—TRINIDAD**—Central Tenders Board invites firms to re-tender for supply and installation of undermentioned works for Caroni-Arena Water Supply Project. Contract 4A is revision of two previously advertised works for which tenders have been rejected. All previously issued documents superseded and invalid. Major items and approx. quantities are: Pipes, prestressed and pretensioned concrete, cylinder and non-cylinder—25,100 ft. of 24 in.; 25,000 ft. of 30 in.; 33,100 ft. of 36 in.; 39,000 ft. of 42 in.; 51,000 ft. of 48 in.; 92,100 ft. of 54 in. Fittings and appurtenances—46 butterfly valves 18-42 inches diameter for buried service. 149 gate valves through 12 in. and 166 air valves. Tenders should be submitted for supplying and installing under one contract. Tender documents available from Engineering Consultants, Trintoplan/CH2M, Orange Grove, Tacarigua, P.O. Box 1262, Port of Spain, Trinidad, Tel: 662-5526-29, 32, 33; Telex: TTPLAN 301; or from CH2M Hill, 1600 S.W. Western Blvd., Corvallis, Ore. 97330, Tel: 503/752-4271; Telex: 360954. Non-refundable TT$100 or U.S. $50 payable to Water and Sewage Authority of Trinidad and Tobago. All prices quoted should be considered firm for 90 days. Successful tenderer required to enter into agreement with Water and Sewage Authority and provide performance bond of 15 percent of contract price. Agreement shall be signed and bond furnished within 30 days following notification of award. Overseas tenderers must be prepared to have representative in Trinidad within 48 hrs. of request during three weeks following closing of tender. If you do not have a rep., contact nearest Department of Commerce District Office. Reps must have authority to make binding decisions or make clarification of tenders submitted. Suggest U.S. bidders consult with Oregon office before deciding whether to tender. Bid deadline April 14.

Iron, steel foundries

• **3320000—MOROCCO** — Supply of irrigation hydrants. Tender No. 12-77; bid deadline April 15. Office Regional de Mise en Valeur Agricole du Sous-Massa, Bureau des Marches, Rue des Administrations Pubiques, B.P. No. 21, Agadir. Specifications available from above address at DH 500 (about $112). Correspondence in French.

Metalworking machinery

3542000, 3559000, 3567000, 3623000—COLOMBIA—CONALCE, Compania Nacional De Servicios Glp Ltda., association of gas distributors of Bogota, plans to build large plant for manufacture of different types of gas cylinders. Following equipment is needed: hydraulic presses for steel plates, over 250 tons; automatic and semi-automatic arc welding equipment; gas cylinder cleaning machines; normalizing furnaces; gas cylinder valve manufacturing machines. CONALCE will send five members of board of directors to U.S. to visit potential suppliers. Established 1976 with authorized and paid-in capital of 10,000,000 pesos. As of Dec. 31, total assets amounted to 21,000,000 pesos. (Rate of exchange: 36.50 pesos = $1.00). Interested firms contact Dr. Gustavo Caicedo, Presidente CONALCE, Calle 43 No. 8-49, Bogota.

Special industrial machinery

• **3559500—BOLIVIA** — Supply of pelletizing equipment for mill. Direct invitation to bid. No deadline specified. Equipment is for pelletizing zinc oxide dust in Kivcet smelter. Pelletizing equipment comprises following: One 30 cu. m. storage bin for zinc oxide (ZnO) made of steel with supports and roofing. One bin mounted filter with waste air volume: 500 cu. m/hr; air compressor with 7.5 kw. motor. One pneumatic emptying system for discharge of ZnO, air blower, rotary lock, screw conveyor with 200 mm. diam., 1.5 m. length, 1.5 kw electric motor. One pelletizing disc of 2,200 mm diam., 600 mm hgt. and pelletizing rate of 4.5 mt. hr. Motor requirements include 11 o.k.w. disc drive, 2.2 k.w. rotor drive, 1.1 k.w. swivel drive. Also supply of two diesel engine front-end loaders of 1.2 cu. m. capacity and 3.8 mt. tipping load with various structural steel chutes. Financing terms and conditions essential to winning of bid. Reply to: Ing. Jorge Lema Pa., Technical Manager, ENAF, Casilla 4301, La Paz.

General industrial machinery

• **3560000 — INDONESIA** — Irrigation water pumps, 250 sets; 75 trucks. Tender number not specified; bid deadline April 25. Project Development Office, Directorate General of Cooperatives, Jalan Let. Jend. Hwryono M.T., Tromol Pos 384, Jakarta Selatan. Tender documents available until April 15 from above address at rupiah 20,000 (approx. $48.19) per set each item.

3563110, 3563181—NETHERLANDS—Air compressors; pneumatic air power compressors & motors. Subsidiary of Internatio-Muller Group, conglomerate with annual sales 3 billion guilders. Estab. 1959, employs 144, annual sales volume 22 million guilders. Importer of valves, compressors & material handling equip. Bank ref: Amsterdam-Rotterdam Bank, Vlaardingen. Reply to—L. A. Van Eijle, Dir., Van Eijle/Co. B.V., Industrieweg 129, Vlaardingen. Tel 010-347522.

Service industry machinery

• **3585000—MALAYSIA** — Supply, delivery and installation of airconditioning equipment for power station. Bid deadline March 31. Equipment shall include marine type refrigeration liquid chillers, air handling unit fans, pumps, and associated pipework and ductwork. Heat absorption type coolers can also be offered as alternative. Complete tenders only. Tenders may be obtained for deposit of $300 Malaysian (approx. U.S. $120) from Sarawak Electricity Supply Corp. (SESCO), 3rd Floor Electra House, Power St., Kuching, Sarawak, East Malaysia; or from Dan Rakan-Rakan, Consulting Engineers, 2nd Floor, Wisma Damansara, Damansara Heights, Kuala Lumpur. Tender deposit refunded upon receipt of bona fide tender or return of documents in good condition before deadline. Deposit of successful tenderer will be retained.

3585000—INDIA—Firm located in Bombay and engaged in manufacturing and marketing of engineering goods wishes to contact suppliers of airconditioning and refrigeration products and other consumer durables. Hopes to arrange either distribution or licensing agreement with American company. Write: Voltas Ltd., 19 Graham Rd., Ballard Estate, Bombay. Attn.: Subramanyam Rajamani.

3589291—SPAIN — Pneumatic garbage collection & laundry collection machinery

& equip. for institutions, such as hospitals, schools, etc. Operates throughout country & imports from various sources, incl. U.S. Indicates he now represents Safe-T-Lawn, Inc., 17800 N.W. 32nd St., Miami, Fla.; Moody Sprinkler Co., Inc., 3020 Pullman St., Costa Mesa, Calif. & Richdel Inc., 1235 W. Glenoaks Blvd., Glendale, Calif. Financial references—Banco de Madrid, Naco de Bilba, Banco Hispano Americano, Banco March, all in Madrid. Quotations f.o.b. Call or cable—Juan A. Fernandez Gaitx, Coslada, 11-13 Madrid 28. Tel: 91/245-9892.

Communications equipment

• **3661000—ETHIOPIA** — Beyene Desta, Gen. Mgr., Telecommunications Service of Ethiopia, P.O. Box 1047, Addis Ababa, has issued tender number 4/77 for supply of 400 coin-operated telephones. Bid deadline April 28. Copy of specifications available from above address. Also, Tender number 1/77 for stored program controlled telex/data switching system. Bid deadline May 23. Copy of specifications available from Printing & Stationery Section, above address, for U.S. $49.

• **3661000—IVORY COAST** — Office of Posts and Telecommunications, Abidjan, has extended the deadline to April 26 on three tenders: number 76-2346/QPT/DGT/DPE/M for supply of telegraphic switching equipment and teleprinters; number 76-2349/OPT/DGT/M for supply of telephone and telegraph equipment; and number 76-951/OPT/DGT/DPE/M for supply of telecommunication transmission and carrier equipment and outside plant. Copies of specifications available from above address.

• **3661000—PERU**—ESI, Peru Empresa de Servicio Informaciones, JR. La Union 284, OF. 75, Lima 1, requests quotations for supply of radio teleprinter, 50 kv.

• **3661000—THAILAND** — Telephone Organization of Thailand, Ploenchit Rd., Bangkok, has issued tender number TOT-B27 for supply of automatic identification and centralized automatic message accounting equipment for use with existing exchanges. Bid deadline May 3. Copy of specifications available from above address at U.S. $2.50 for first set and $1 each additional.

• **3661000—INDIA** — Director General of Supplies & Disposal, N. I. Building, Parliament St., New Delhi—110 001, has issued tender number ES-4/209/057/17.12.76/ED-18.1.77/34/CELL679 for supply of (1) 25 selective callying systems with spares for two years; (2) 50 technical and operational manuals. Bid deadline April 19. $3.35 (non-refundable) tender fee. Copy of specifications available from Supply Wing, Embassy of India, 2536 Mass. Ave., NW., Washington, D.C. 20008.

• **3662000 — IRELAND** — Engineer-in-Chief, Department of Posts and Telegraphs, Contracts Section, Marlborough St., Dublin 1, has issued tender number C/610/4/14 for supply of 12 circuit carrier-on-cable systems on various scheduled routes in accordance with specification No. ML/77. Bid deadline April 14. Copy of specifications available from above address.

• **3662000—MALAYSIA**—Malaysian Meteorological Service, Jalan Sultan, Petaling Jaya, Salangor, has issued tender for supply of 650 radiosondes, RS21-12C or equivalent. Bid deadline April 14. Copy of specifications available from above address.

• **3662000 — TAIWAN** — Procurement Dept., Central Trust of China, 49 Wuchang St., Sec. 1, Taipei 100, has issued tender number GF2-660098 for supply of 1,500 sets decimal digital tone-only radio paging receivers with alkaline battery and programmable uncoded code plug. Bid deadline April 14. Copy of specifications available from above address.

Electronic components, accessories

• **3674000—COLOMBIA** — Division de Suministros, Empresa Nacional de Telecommunicaciones, Telcom, Calle 23, No. 13-49 Piso 7, Bogota, has issued Licitacion Publica International 005/77 for supply of electronic rectifier system for feeding of telecommunications equipment, including accessories and control boards for Telcom Building. Bid deadline May 13. Bids must be presented through authorized local representatives. Copy of specifications available from above address at 4,000 pesos (U.S. $110) first copy and 800 pesos (U.S. $22) each additional.

Engineering, laboratory, scientific research instruments

• **3811000—INDIA**—D.C. Bhattachariyya, Procurement Officer, Assam Agricultural University, I.D.A. Education Project, Jorhat 13, Assam, has issued tender number AAU/IDA/PROC/P-17/76-77 Bid Package No. 13, for supply of laboratory balances, tissue culture equipment, and vacuum hot air oven. Bid deadline April 15. Copy of specifications available from above address for 50 rupees.

• **3811000—MALAYSIA**—Bursar, Universiti Sains Malaysia, Minden, Penang, has issued two tenders: number WBSE/177/PM/2 for supply of scientific equipment for School of Physics and Mathematics; and number WBSE/77/BI/1 for supply of scientific equipment for School of Biological Sciences, including carbon analyzer, water bath, electrophoresis apparatus, gas chromatograph, electron microscope, etc. Both bid deadlines April 8. Copy of specifications available from above address for M $50 per set each tender (U.S. $1 = approx. M $2.50).

• **3811000—MALAYSIA** — Director, Malaysian Agricultural Research & Development Institute, Post Bag 202, Universiti Pertanian Post Office, Serdang, Selangor, has issued two tenders: number T/MDWB. 3/77 for supply of laboratory equipment for rice research program, bid deadline April 7, copy of specifications available from above address at M $50; also, number T/MDWB. 4/77 for supply of laboratory equipment for livestock research and Central Analytical Services, bid deadline April 14, M $30 per set. Make payment in form of bank draft, money or postal order (U.S. $1 = M $2.50 approx.).

• **3811000—PERU** — Edwin Cox Chenau, Director Projects Peru—BIRF, Ministerio De Educacion, Piso 21, Parwue Universitario Lima 1, has issued tender number 01-76-ED-DPPB for supply of (1) educational and training laboratory equipment; (2) educational and training equipment; (3) maps; (4) typewriters; (5) physical properties testing equipment for educational purposes; (6) photographic equipment for educational purposes. Bid deadline April 15, (Envelope A); May 2 (Envelope B). Copy of specifications available from above address for $27.96.

Instruments for measurement, analysis and control

• **3824000—INDIA**—Additional Chief Engineer, (A and P) Uttar Pradesh Jal Nigam, 6 Rana Pratap Marg, Luchnow, Uttar Pradesh, has issued tender number 5 for supply of 60,000 watermeters with threaded end connections, sizes 15 to 32mm, and 150 watermeters, bulk type, 40 to 300mm, with flanged end connections. Bid deadline May 6. Copy of specifications available from above address.

Photographic equipment, supplies

• **3861000, 3851000—INDIA**—D.C. Bhattachariyya, Procurement Officer, Assam Agricultural University, IDA Educational Project, Jorhat 13, Assam, has issued tender number AAU/IDA/PROC/P-17/76-77 Bid Package No. 7 for supply of cameras, projectors & other audio-visual equipment. Bid deadline April 15. Copy of specifications available from above address for 50 rupees per set.

Scrap materials

5093—PORTUGAL—50 m.t. kitchen, bus & sheet aluminum scrap, mechanically baled. Immediate shipment. Estab. 1945, registered capital one million escudos, annual sales volume 19 million escudos, requests prices c.i.f. Leixoes. Importer & dealer of ferrous & non-ferrous metals. Foundry of non-ferrous metals. Dir. sale & rep. Cable or telex—David Barbosa, David Barbosa & Ca., Lda., 722 Rua de Sousa Aroso, Matosinhos. Cable DABACOL, MATOSINHOS; telex 225 01 DABACO-P. Tel. 681782.

Services

8911—INDIA—Dr. H. K. Muthoo requests expressions of interest from qualified U.S. companies that wish to establish business tie-up with Globetech for undertaking engineering, consultancy and design assignments in India and third countries. Globetech provides engineering, consulting, business and management services in wide range of engineering and chemical areas. Currently engaged as consultant on several projects, including tractor & agricultural implements; tire & tube; hotel & motel; wire & cable; heavy & light engineering such as foundries, forge shops; tool room facility; water treatment & malleable iron castings. To implement $70 million tractor & agricultural implements projects, Globetech has concluded technical services agreement with Massey Ferguson of England. Turnkey services that Globetech offers include techno-economic studies, feasibility and project reports, financial engineering, market study and economic investigations, site selection and survey, basic and process engineering, preparation of specs., tender evaluation and equipment purchase assistance, detailed design engineering, project management and construction supervision, start-up and commissioning, training of personnel, equipment design and development. About 70 of Globetech's 85 engineers/technicians are assigned to projects outside of India. Firm claims that total cost of projects with which it is associated approx. $800 million. Interested consultants contact Dr. H. K. Muthoo, Mng. Dir., Globetech Engineers, 8-C Atma Ram House, Tolstoy Marg, New Delhi, 110 001. Telex: 2757 HIND & 3961 EAST BLK; Tel: 383275; Cable: GLOBETECH.

Representations

Foreign private firms are interested in agency agreements and/or distributorships for these products.

Construction—plumbing, heating, AC

1711—QATAR — Well-established, reputable firm has expressed interest in acting as agent or joint venture partner for U.S. contractors specializing in installation of A/C and heating equipment with goal of cooperating in medium to large installation projects in Qatar. Contact directly G. S. Al-Suwaidi, G. Al-Suwaidi Trading Establishment, P.O. Box 2831, Doha, telephone 27603. Firms also requested to contact Andras F. Behr, BIC/CAGNE, U.S. Department of Commerce, Washington, D.C. 20230, 202-377-4441.

Cutlery, hand tools, hardware

3421111—THAILAND — Kitchen knives. Requests samples & prices. Excl. agency. Reply to—Mark Wenham, Mgr., Eng-Thai Bros. Co., Ltd., Rm 216, Tipco Bldg., 179 Surawongse Rd., Bangkok 5. Tel 2349640 ext. 138.

Metal stampings

3463000—ECUADOR—Aluminum sheets, suitable for highway sign fabrication. Primarily interested in repres. agreements. Contact Cesar Davila, Mkt. Mgr., Larutan, Av. Colombia 248 Of. 911, Casilla 2648, Quito.

Special industrial machinery

3559589—BOLIVIA—Machinery & equip. to eliminate or destroy all kinds of paper. Reply to—Sics Ltda., Jorge Yanez-B, Casilla 8637, La Paz. Cable SICS LTDA.

Radio, television receiving sets

3651202—MALAYSIA—Interested in acting as sole agent for mfr. of color television. Write S. S. Goh, Mng. Dir., Uni Enterprise SDN. BHD., 175 (2nd Fl.) Jalan Bandar, Kuala Lumpur 01-27.

Communications equipment

3662681, 3842198—SWEDEN—Radio controlled garage door openers—coded systems, if possible; aids for handicapped. Equipment for handicapped care and rehabilitation. Small firm, established 1975, already represents some U.S. firms. Owner/manager Magnusson described by local credit sources as efficient and reliable businessman, financially sound, with many years experience this field. Recommended trade contact. Since firm recently founded, normal business precautions should be observed. Reply to—Tor Magnusson, SCANFLEX, Box 262, S-183 23 Taby. Cable: SCANFLEXMED; tel: 08/758 88 85.

Surgical, med., dental instruments

3842351, 3842371, 3829407, 3829402, 3829439—SWITZERLAND—Safety clothing, shields, masks, & supplies used in nuclear power plants & research centers; disimetry systems. Small, active distr. of electronic instruments & safety equip. Bank ref—Swiss Bank Corp., 1000 Lausanne. Sales territory: Switz. Reply to—P. Fuchs, Pres., Teleco, Chemin Champrilly 26, 1008 Lausanne, Tel 021/25445; telex 25950.

Scrap & waste materials

5093—KOREA—Brass scrap, cu-60 ct & zn-40 ct. Annual requirement 400 m.t. Claims to have located market for supply of brass scrap. Price quotations, specs., & delivery terms along with proposal for agency agreement requested. Kumho is one of Korea's largest foreign traders. Also registered offer agent. Official status required in Korea to represent foreign suppliers & submit price quotations in own name. WTDR 4/76. Reply to—C. D. Won, Machinery Section, Kumho & Co., Inc., Trade Dept., CPO Box 4585, Seoul 100. Cable KUMHOINC SEOUL; telex KUMHO K27321; tel 777-5111/20.

Insurance

6411 — BAHAMAS — Local insurance agent wishes rep. U.S. insurance-co. which specializes in general insurance, i.e., house, car, boat, accident liability etc. Write Philip Worrell, Insurance Agent, P.O. Box N-698, Nassau, Tel. 809/ 325-8611.

Future Construction Abroad

QATAR—Firm wishes to contact U.S. companies interested in joint venture to build **two large, high-rise apartment/commercial buildings** in Qatar. U.S. applicants should have experience in building structures of this type. Correspond in English. Interested firms contact Saady As-Said, Rabban Trading and Contracting Co., Doha, telephone 23588.

LIBYA—Tenders invited for drilling of **six water wells** at Mrah al Weshka to depths of about 1,200 meters. Project will be financed by government through Libyan commercial bank. Tender documents and specs obtainable upon payment of LD300 (US $1,030) from address below. Offers must be accompanied by initial guarantee of LD30,000 (US $103,000) and certificates showing company's qualifications, experience and previously completed works. Interested firms send applications by April 2 to Council of Agricultural Development, Ibrahim Hafed Bldg., Omar Mukhtar St., P.O. Box 190, Tripoli.

SAUDI ARABIA—Safwan Nassib Ajlani, Partner/Gen. Mgr., Arab Development Co. (P.O. Box 4084, Riyadh; Cable DEVELPMENCO; Telex 40055 MAPHAR SJ; Phone 63857) desires to sponsor and represent U.S. contracting firms for construction of **roads, tunnels and railroads** in Saudi Arabia, Egypt and Syria. For additional information contact Pete Zantal, CAGNE/BIC, U.S. Department of Commerce, Washington, D.C. 20230; 202-377-4441.

TUNISIA—Office of Cereals is seeking international bidders for supply and installation of **10 grain silos, one silo extension and 40 grain collection centers:** Lot 1—three silos each with 30,000-ton capacity; Lot 2—three silos each with 20,000-ton capacity and one 20,000-ton extension to existing silo; Lot 3—four silos each with 10,000-ton capacity; Lot 4—40 grain collection centers, 20 each with 1,000-ton capacity and 20 each with 500-ton capacity. Silos must receive 50 tons/hour for 10,000-ton silos and 100 tons/hour for 20/30,000-ton silos. Must discharge 25 tons/hour for 10,000-ton silos and 50 tons/hour for 20/30,000-ton silos. Silos to be installed at sites already chosen throughout Tunisia. Collection center sites not yet defined. Related accessories to be included in tender. Offers should include price of each individual lot and unit prices for each individual item per lot. Office of Cereals requires supplier to provide financing package with offer. Interested U.S. firms write or cable by March 28 to Tahar Zarrad, Pres. Dir. Gen., Office des Cereals, 23 bis Rue Al Djaz Ira, Tunis, telephone 274-306 or 247-422. Correspondence in French preferred. Additional information and copy of tender document available from Andras F. Behr, BIC/CAGNE, U.S. Department of Commerce, Washington, D.C. 202-377-4441. OPIC.

Visiting Buyers & Officials

DENMARK — Manufacturer of kitchen cabinets wishes to import **melamine coated chipboard.** Estimated annual consumption $4 million. Tonny Haahr, Mng. Dir., HTH Kitchens A/S, 6 Industrivej, OK-6870 Olgod.

INDIA — Businessman from Bombay wishes American technology in area of **pumps, valves and special castings;** he is manufacturer of pumps, valves, compressors and machine tools. He can be reached at: S. M. Khandekar, c/o Dr. Prabhakar Rao, 43/63 Bowne St., Flushing, N.Y. His permanent address in India is: Kirloskar Brothers Ltd., Udyog Bhayan, Tilak Rd., Poona 411 002, Attn: S. M. Khandekar.

MOROCCO—Manufacturer of blue jeans wishes to contact distributors of **zippers and buttons.** His permanent address is: Chapic S.A., 7 Bis Rue Abdelhamid Bnou Badis, Ain-Sebaa, Casablanca, Attn: Lahcen Chakri.

BELGIUM—Businessman wishes to contact manufacturers of **hot rolled iron, steel beams, cold rolled steel, and tin coating.** Specifications can be obtained by writing to: Marc Theisen, 3549 Springland Lane, Washington, D.C. 20008.

LEBANON—Pierre Abdelnour of Beirut is visiting the U.S. and is interested in representing U.S. manufacturers of **consumer goods (hardware, housewares and foodstuffs)** on a commission agent basis or distributorship in Lebanon and the Middle East. Fluent in Arabic, French and English. Pierre Abdelnour, 624 67th St., Brooklyn, N.Y. 11220; 212-745-1588.

ECUADOR—Businessman will be in the United States for three weeks starting March 25. He is interested in importing general **textile mill machinery.** Firms wishing to meet him should contact: Peter B. Alois, U.S. Department of Commerce, Foreign Buyer Program, Room 2322, Washington, D.C. 20230; 202-377-3265.

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